



South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

July 28, 2010

Mr. Gerardo Rios
Chief – Permits Office
U. S. EPA, Region IX
75 Hawthorne Street, Air 3
San Francisco, CA 94105

Dear Mr. Rios:

Subject: AOC, LLC. (ID 117140) – Title V Permit Revision

AOC, LLC. (ID 117140) has proposed to revise their Title V permit. The revision will include installation of new VOC control systems (carbon systems) in addition to the existing afterburner. Upon modification, most facility's equipment will vent to the activated carbon systems. The existing afterburner will be used to control VOC emissions from two reactors (the main VOC emitting equipment) and a curing oven. AOC is producing polyester resin from polyhydric alcohols and polybasic acids. SIC Code for the facility is 2821, and it is located at 19991 Seaton Avenue, Perris, CA 92570. The proposed permit revision is considered a "de minimis significant permit revision" to the facility's Title V permit.

Attached for your review are the evaluation and the proposed permit for the revision. With your expected receipt of the proposed Title V permit revision today, we will note that the EPA 45-day review period begins on July 28, 2010. If you have any questions or need additional information regarding the proposed permit revision, please call Hassan Namaki at (909) 396-2699.


Very truly yours,

Brian L. Yeh
Senior Manager
Chemical/Mechanical Operations

BLY:HN

Attachments

Cleaning the air that we breathe...

 <p align="center"> SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION PERMIT APPLICATION EVALUATION AND CALCULATIONS </p>	PAGES: <p align="center">36</p>	PAGE: <p align="center">1</p>
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	PROCESSED BY: <p align="center">H. N.</p>	CHECKED BY:

RECLAIM/TV FACILITY EVALUATION FOR PERMIT TO CONSTRUCT

APPLICANT'S NAME: AOC, LLC

CONTACT PERSON: JUAN MONTALVO
(951) 943-9724

MAILING ADDRESS: 1991 SEATON AVENUE
PERRIS, CA 92570


EQUIPMENT ADDRESS: 1991 SEATON AVENUE
PERRIS, CA 92570

APPLICATION: 501584, 501142, 501143, 501144, 501145, 501146, 501147, 501148,
501149, 501150, 501151, 501153, 501154, 501155, 501156, 501157,
501158, 501159, & 501160

FACILITY ID: 117140 RECLAIM: YES (NOX) TITLE V: (YES)

APPLICATIONS:

APPLICATION	DESCRIPTION	DEVICE ID	PREVIOUS APPLICATION NUMBERS	APPLICATION TYPE
501584	TV/RECLAIM AMEND	N/A	N/A	CLASS III
501142	MIXER, SAMPLE	D19	344456	CLASS I (MODIFICATION)
501143	BULK MATERIAL LOADING	D20	344458	CLASS I (MODIFICATION)
501144	STORAGE, BASE RESIN # 1	D22	344460	CLASS I (MODIFICATION)
501145	STORAGE, BASE RESIN # 3	D24	344467	CLASS I (MODIFICATION)
501146	STORAGE, BASE RESIN # 4	D25	344470	CLASS I (MODIFICATION)
501147	STORAGE, BASE RESIN # 5	D26	344473	CLASS I (MODIFICATION)
501148	STORAGE, BASE RESIN # 2	D23	344463	CLASS I (MODIFICATION)
501149	STORAGE, BASE RESIN # 6	D27	344479	CLASS I (MODIFICATION)
501150	STORAGE, BASE RESIN # 7	D28	344481	CLASS I (MODIFICATION)
501151	STORAGE, BASE RESIN # 8	D29	344476	CLASS I (MODIFICATION)
501153	STORAGE, BASE RESIN # 9	D30	344482	CLASS I (MODIFICATION)
501154	STORAGE, BASE RESIN # 10	D31	344483	CLASS I (MODIFICATION)
501155	STORAGE, STYRENE	D32, D33	451095	CLASS I (MODIFICATION)

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501156	RINSE TANK, STYRENE	D45	459523	CLASS I (MODIFICATION)
501157	MIX TANK, RESIN	D7 – D18	451093	CLASS I (MODIFICATION)
501158	APC, AFTERBURNER	C38	385252	CLASS I (MODIFICATION)
501159	APC, ACTIVATED CARBON	NEW	N/A	CLASS I (NEW)
501160	APC, ACTIVATED CARBON	NEW	N/A	CLASS I (NEW)


BACKGROUND:

AOC, LLC (Alpha Owens Corning) headquartered in Collierville Tennessee, is a global supplier of polyester resins, gel coats, colorants and additives for composites and cast polymers. AOC products are manufactured in facilities strategically located in United States, Canada, Mexico, Europe and Asia. At the above facility, AOC produces unsaturated polyester resins from raw materials (Polyhydric alcohols and polybasic acids). The facility is both a NO_x RECLAIM and Title V facility and subject to the Rule 1141 (Control of Volatile Organic Compound Emission from Resin Manufacturing). Depending on the equipment and/or type of manufacturing process used to produce resin products, the rule requires that the manufacturer limit VOC emissions to:

- 1- 0.5 lb per 1,000 lbs of product or by 95% or more;
- 2- In the case of the continuous polystyrene, VOC emissions must be limited to 0.12 lbs per 1,000 lb of product;
- 3- If the resin manufactured by other methods, VOC emissions must be reduced by 98% or more.

AOC operation is a batch process; and currently VOC emissions from the entire operation being controlled by a natural gas fired afterburner. Current permit conditions require the facility to meet 0.5 lb per 1000 lbs of material processed. However, in the previous applications for the equipment a VOC removal efficiency of 98.8% has been assumed for VOC control. Further, facility has indicated they will maintain such efficiency with the new APC system (carbon train). Therefore a VOC control efficiency of 98.8% will be required for the carbon system. This efficiency reduces the emissions below Rule 1141 requirements. This will be demonstrated under Rule evaluation section.

The applications above were submitted to install a new VOC control system in addition to the afterburner. Upon modification the mix tanks, storage tanks, thin tanks, and loading systems will vent to an activated carbon system. The reactors (the main VOC emitting equipment) and a curing oven will vent to the thermal oxidizer. The new vent configuration will allow facility to shut down the afterburner when reactors are not operating reducing operating cost and combustion air contaminant. The facility will maintain the option of operating the reactors 24 hrs/day, seven days per week, but the average operation will be 5 days per week. The facility is located in city of Perris with residential and commercial receptors within 400 ft of the facility.

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PROCESS DESCRIPTION:

General


AOC, LLC produces polyester resins from raw materials (polyhydric alcohols and polybasic acids). Materials are charged into reactors and cooked with catalyst and activators under total reflux. The reaction is carried out under an inert gas blanket to exclude oxygen. Following the completion of the reaction, the resin is cut using styrene which provides the free valence for cross linking. The process is a batch process with equipment and vessels installed outdoor (not enclosed in a building). Each vessel, loading system, and storage equipment is under negative pressure, with vapors being channeled to the plant vent system which is currently connected to the afterburner to destroy any organic vapors that could otherwise escape to the atmosphere. Upon modification facility will vent all the mix tanks, storage tanks, thin tanks, and a bulk loading system to an activated carbon system. Only the reactors and a curing oven (seldom used) will vent to the afterburner.

Raw Materials

Raw materials are stored and used in bulk quantities. Railcars of raw materials are received at the rail facility that is at another location. The materials are transloaded to tanker trucks or bulk liquid sea containers and transported to the plant, where they are off-loaded into above-ground storage tanks. From the raw material storage tanks, materials are pumped to the reactors in accordance with predetermined formulations. The material transfer to the reactors is achieved using a closed piping system.

Reactor Products

There are two reactor vessels at AOC (D1 and D3). Product is manufactured by charging the necessary raw materials into the reactor using a predetermined formulation. The materials are transferred via closed piping system to the reactor where reactions occur to produce polyester. Each reactor vessel is equipped with a natural gas fired furnace and heated until the exothermic polymerization reaction begins. Cooling water is used to control the temperature of the system. The reactor is maintained at a slight positive pressure with inert gas to prevent detrimental oxidation of the polyester. Each reactor has a reflux column and partial condenser that recycles material back into the vessel as the product cycle progresses. The vapors that escape the condenser flow through the waste gas system through the surge vessel. The surge vessel contains baffles to interrupt the flow of the gas with turbulence, causing some of the material to condense and remain in the surge vessel. This material is used in subsequent product as raw material, effectively recycling it. From the surge vessel, material that remains in the vapor phase flows through the secondary column. Any material that condenses in this column is collected in the “knockout pot” and transferred back into the surge vessel for recycling. Any material that is still in the vapor phase then travels to a nozzle on the

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afterburner, where it flows into the combustion chamber and is destroyed thermally. The two reactors have a common vapor train header with a check valve between them so that the gases travel from both reactors through the system as described above. When operating, both reactors are typically in constant use, with only a few minutes between the end of one batch and the start of the other.

Reactor Polyester Thinning and Base Resin


After completion of polymerization reaction, the polyester is transferred to a thinning tank where it is combined with styrene (through a closed piping system) and inhibitor (to keep it from hardening prematurely) according to the type and amount specified on the formulation worksheets. The cut resin mixture is called base resin. Once it has been inspected for key properties, it is either used immediately for a formulated product or it is transferred to a base resin storage tank. The thin tanks have condensers that condense much of the styrene vapor before it goes to the common vent system header.

Formulated Products


Formulated products are the products that are manufactured to the customers' specifications. These products are mixtures of different types of base resins and micro additives designed to elicit specific properties in the finished product. No reactions occur in mix tanks. During all formulation, adjustment, mixing, and loading or packaging of these products, the vessels and piping through which the product flows is attached to the vent system. Currently the equipment vent to an afterburner; after modification the mix tank will be vented to an activated carbon system.

Packaging and Shipping


Products produced are shipped using drums and/or bulk loaded into tank trucks for shipping. In general base resins are bulk transferred. AOC has a bulk loading facility and two drum filling stations. The bulk loading facility is equipped with vapor return line. Drum filling stations and bulk loading equipment are currently vented to the thermal oxidizer and will vent to the carbon system upon modification.

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EQUIPMENT	ID NO	CONNECTED TO	RECLAIM SOURCE TYPE	EMISSIONS & REQUIREMENT	EQUIPMENT SPECIFIC CONDITIONS
Process 1: POLYESTER MANUFACTURING					
System 1: POLYESTER REACTION, MIXING STORAGE AND PACKAGING					S20.1
REACTOR, R1, 3000 GALLON CAPACITY, HEIGHT: 6 FT 9 IN; DIAMETER: 8 FT WITH A/N: 451093 501157 FURNACE, NATURAL GAS, 3.288 MMBTU/HR CONDENSER, REFLUX COLUMN	D1 D2 C43	C38	NOX: PROCESS UNIT	ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992] CO: 2000 PPMV (5) [RULE 407,4-2-1982] ; NOX: 57.69 LBS/MMSCF NATURAL GAS (1) [RULE 2012,12-7-1995]; NOX: 12.8 LBS/i000 GAL PROPANE (1) [RULE 2012,12-7-1995] PM: 0.1 GRAINS/SCF (5)[RULE 409,8-7-1981] ; PM: (9) RULE 404,2-7-1986]	E1.1 B75.1, D323.1
REACTOR, R2, 4300 GALLON CAPACITY, HEIGHT: 8 FT 4 IN; DIAMETER: 9 FT WITH A/N: 451093 501157 FURNACE, NATURAL GAS, 4 MMBTU/HR	D3 D4	C38	NOX: PROCESS UNIT	ROG: 0.5 LBS/i000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992] CO: 2000 PPMV (5) [RULE 407,4-2-1982]; NOX: 57.69 LBS/MMSCF NATURAL GAS (1) [RULE 2012,12-7-1995]; NOX: 12.8 LBS/i000 GAL PROPANE (1) [RULE 2012,12-7-1995] PM: 0.1 GRAINS/SCF (5)[RULE 409,8-7-1981]; PM: (9)[RULE	E1.1 B75.1, D323.1

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CONDENSER, REFLUX COLUMN	C44			404,2-7-1986]	
TANK, HOLDING, TT1, THINNING, JACKETED, WITH CONDENSER, HEIGHT: 13 FT 4 IN; DIAMETER: 8 FT 8 IN A/N: 451093 501157	D7	C38 <u>C58</u>		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992]	E1.1
TANK, HOLDING, TT2, THINNING, JACKETED, WITH CONDENSER, HEIGHT: 14 FT 9 IN; DIAMETER: 9 FT 6 IN A/N: 451093 501157	D8	C38 <u>C58</u>		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992]	E1.1
MIXER, TANK MT7, POLYESTER RESIN, JACKETED, WITH CONDENSER, HEIGHT: 12 FT 6 IN; DIAMETER: 9 FT 6 IN A/N: 451093 501157	D9	C38 <u>C58</u>		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992]	D323.1, E1.1, E166. 1
MIXER, TANK MT1, HEIGHT: 6 FT; DIAMETER: 10 FT A/N: 451093 501157	D10	C38 <u>C58</u>		PM: (9) [RULE 405,2-7-1986]; ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	D323.1, E1.1, E166. 1
MIXER, TANK MT2, HEIGHT: 8 FT; DIAMETER: 10 FT A/N: 451093 501157	D11	C38 <u>C58</u>		PM: (9) [RULE 405,2-7-1986]; ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	D323.1, E1.1, E166. 1
MIXER, TANK MT3, HEIGHT: 11 FT 2 IN; DIAMETER: 6 FT A/N: 451093 501157	D12	C38 <u>C58</u>		PM: (9) [RULE 405,2-7-1986]; ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	D323.1, E1.1, E166. 1
MIXER, TANK MT4, HEIGHT:	D13	C38		PM: (9) [RULE	D323.1, E1.1,

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11 FT; DIAMETER: 10 FT A/N: 451093 501157		C58		405,2-7-1986]; ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E166. 1
MIXER, TANK MTS, HEIGHT: 12 FT 6 IN; DIAMETER: 12 FT 6 IN A/N: 451093 501157	D14	E38 C58		PM: (9) [RULE 405,2-7-1986]; ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	D323.1, E1.1, E166. 1
MIXER, TANK MT6, HEIGHT: 12 FT 6 IN; DIAMETER: 12 FT 6 IN A/N: 451093 501157	D15	E38 C58		PM: (9) [RULE 405,2-7-1986]; ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	D323.1, E1.1, E166. 1
PACKAGING MACHINE, DRUM FILLING STATION A/N: 451093 501157	D17	E38 C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992	E1.1
PACKAGING MACHINE, DRUM FILLING STATION A/N: 451093 501157	D18	E38 C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992	E1.1
EQUIPMENT	ID NO	CONNECTED TO	RECLAIM SOURCE TYPE	EMISSIONS & REQUIREMENT.	EQUIPMENT SPECIFIC CONDITIONS
Process 1: POLYESTER MANUFACTURING					
System 2: SAMPLE MIXING					
MIXER, SAMPLE, 200 GALS; DIAMETER: 4 FT; HEIGHT: 3 FT 6 IN A/N: 344456 501142	D19	C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992	E166.1
EQUIPMENT	ID NO	CONNECTED TO	RECLAIM SOURCE TYPE	EMISSIONS & REQUIREMENT.	EQUIPMENT SPECIFIC CONDITIONS
Process 1: POLYESTER MANUFACTURING					
System 3: MATERIAL HANDLING					
BULK MATERIAL LOAD/UNLOAD STATION, TANK TRUCK, WITH VAPOR RETURN LINES	D20	E38 C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992	E57.2

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A/N: 344458 <u>501143</u>					
EQUIPMENT	ID NO	CONNECTED TO	RECLAIM SOURCE TYPE	EMISSIONS & REQUIREMENT.	EQUIPMENT SPECIFIC CONDITIONS
Process 2: STORAGE TANK					
System 1: STORAGE					
STORAGE TANK, #1, RESIN, 17000 GALS A/N: 344460 <u>501144</u>	D22	€38 C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992	E1.1, E166.1
STORAGE TANK, #2, RESIN, 17000 GALS A/N: 344463 <u>501148</u>	D23	€38 C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992	E1.1, E166.1
STORAGE TANK, #3, RESIN, 17000 GALS A/N: 344467 <u>501145</u>	D24	€38 C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992	E1.1, E166.1
STORAGE TANK, #4, RESIN, 15000 GALS A/N: 344470 <u>501146</u>	D25	€38 C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992	E1.1, E166.1
STORAGE TANK, #5, RESIN, 15000 GALS A/N: 344473 <u>501147</u>	D26	€38 C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992	E1.1, E166.1
STORAGE TANK, #6, RESIN, 10000 GALS A/N: 344479 <u>501149</u>	D27	€38 C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992	E1.1, E166.1
STORAGE TANK, #7, RESIN, 22000 GALS A/N: 344481 <u>501150</u>	D28	€38 C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992	E1.1, E166.1
STORAGE TANK, #8, RESIN, 10000 GALS A/N: 344476 <u>501151</u>	D29	€38 C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992	E1.1, E166.1

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STORAGE TANK, #9, RESIN, 17000 GALS A/N: 344482 <u>501153</u>	D30	€38 C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992	E1.1, E166.1
STORAGE TANK, #10, RESIN, 17000 GALS A/N: 344483 <u>501154</u>	D31	€38 C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992	E1.1, E166.1
EQUIPMENT	ID NO	CONNECTED TO	RECLAIM SOURCE TYPE	EMISSIONS & REQUIREMENT.	EQUIPMENT SPECIFIC CONDITIONS
Process 2: STORAGE TANK					
System 2: MISCELLANEOUS STORAGE					
STORAGE TANK, #3, STYRENE, 17800 GALS; DIAMETER: 13 FT; HEIGHT: 18 FT A/N: 451095 <u>501155</u>	D32	€38 C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992	E1.1, E166.1
STORAGE TANK, #6, STYRENE, 17800 GALS; DIAMETER: 13 FT; HEIGHT: 18 FT A/N: 451095 <u>501155</u>	D33	€38 C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992	E1.1, E166.1
STORAGE TANK, #10, RINSE, STYRENE, 5000 GALS; DIAMETER: 8 FT; HEIGHT: 14 FT A/N: 459523 <u>501156</u>	D45	€38 C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992	E57.1, E166.1
EQUIPMENT	ID NO	CONNECTED TO	RECLAIM SOURCE TYPE	EMISSIONS & REQUIREMENT.	EQUIPMENT SPECIFIC CONDITIONS
Process 3: AIR POLLUTION CONTROL SYSTEM					
System : NO SYSTEM WAS ASSIGNED FOR THIS PROCESS					
TANK, SURGE, WASTE, VAPOR, 12000 GALS; DIAMETER: 10 FT; LENGTH: 25 FT	C39			ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992	

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A/N: 385252 <u>501158</u>					
COLUMN, SECONDARY, HEIGHT: 20 FT 6 IN; DIAMETER: 3 FT WITH A/N: 385252 <u>501158</u> KNOCK OUT POT, HEIGHT: 6 FT 3 IN; DIAMETER: 3 FT	C41 C42			ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992 ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141,4-3-1992	
AFTERBURNER, NATURAL GAS, 7.5 MMBTU/HR WITH A/N: 385252 <u>501158</u>	C38	D1, D3, D7, D8, D9, D10 D11, D12, D13, D14, D15, D17, D18, D20, D22, D23, D24, D25, D26, D27 D28, D29, D30, D31, D32, D33, D45, D56	NOX: PROCESS UNIT	CO: 2000 PPMV (5) [RULE 407,4-2- 1982]; NOX: 64.1 LBS/MMSCF NATURAL GAS (1) [RULE 2012,12-7- 1995]; NOX: 12.8 LBS/1000 GAL PROPANE (1) [RULE 2012,12-7-1995] PM: 0.1 RAINS/SCF (5)[RULE 409,8-7- 1981]; PM: (9)[RULE 404,2-7- 1986]	B75.1, C8.2, D12.1, D12.3, D28.1, D323.1, E168.1
Process 3: AIR POLLUTION CONTROL SYSTEM					
System : NO SYSTEM WAS ASSIGNED FOR THIS PROCESS					
CARBON ADSORBER, THREE VESSELS IN SERIES, EACH WITH 8000 LB OF ACTIVATED CARBON. AN: 501159 Blower, 4800 CFM	C58 B59	D7, D8, D9, D10, D11, D12, D13, D14, D15, D17, D18, D20, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D33, D45,			C1.3, C6.1, D12.7, D28.2, D90.1, E153.1
Process 2: STORAGE TANK					
System 2: MISCELLANEOUS STORAGE					

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STORAGE TANK NO. 1, DCPD AN:501160	D60	C62			
STORAGE TANK NO. 2, DCPD AN:501160	D61	C62			
CARBON ADSORBER, TWO 55- GALLON DRUM IN SERIES, EACH WITH 150 LB OF ACTIVATED CARBON. AN:501160	C62				C6.1, D90.2, E153.2

SYSTEM CONDITIONS:

S1.1 The operator shall limit the production rate to no more than 7.26 million lb(s) in any one month.

[Rule 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002]

[Systems subject to this condition: Process 1, System 1]

S20.1 For the purposes of determining compliance with District Rule 1141, VOC emissions shall be based on the combined emissions from all points of this system.

[Rule 1141, 4-3-1992]


[Systems subject to this condition: Process 1, System 1]

DEVICE CONDITIONS:

E1.1 The operator shall vent the emissions from this equipment to only one of the devices identified in the connected to" column of this facility permit at any given time.

[Rule 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition : D1, D3, D7, D8, D9, D10, D11, D12, D13, D14, D15, D17, D18, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D33, D34, D56]

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B75.1 The operator shall not use propane in this equipment except under the following circumstance(s):

Natural gas curtailment
Compliance testing
Maintenance testing

[Rule 1303(b) (2)-Offset, 5-10-1996]

[Devices subject to this condition: D1, D3, C38]


D323.1 The operator shall conduct an inspection for visible emissions from all stacks and other emission points of this equipment whenever there is a public complaint of visible emissions, whenever visible emissions are observed, and on a semi-annual basis, at least, unless the equipment did not operate during the entire semi-annual period. The routine semi-annual inspection shall be conducted while the equipment is in operation and during daylight hours.

If any visible emissions (not including condensed water vapor) are detected that last more than three minutes in any one hour, the operator shall verify and certify within 24 hours that the equipment causing the emission and any associated air pollution control equipment are operating normally according to their design and standard procedures and under the same conditions under which compliance was achieved in the past, and either:

- 1). Take corrective action(s) that eliminates the visible emissions within 24 hours and report the visible emissions as a potential deviation in accordance with the reporting requirements in Section K of this permit; or
- 2). Have a CARB-certified smoke reader determine compliance with the opacity standard, using EPA Method 9 or the procedures in the CARB manual Visible Emission Evaluation, within three business days and report any deviations to AQMD. In addition, the operator shall have a CARB-certified smoke reader determine compliance with the opacity standard, using EPA Method 9 or the procedures in the CARB manual Visible Emission Evaluation, within 72 hours of conversion to fuel oil firing and on a weekly basis thereafter, until the equipment stops firing fuel oil.

The operator shall keep the records in accordance with the recordkeeping requirements in Section K of this permit and the following records:

- 1). Stack or emission point identification;
- 2). Description of any corrective actions taken to abate visible emissions;
- 3). Date and time visible emission was abated; and
- 4). All visible emission observation records by operator or a certified smoke reader.

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[Rule 3004(a) (4)-Periodic Monitoring, 12-12-1997]

[Devices subject to this condition: D1, D3, D9, D10, D11, D12, D13, D14, D15, C38, D49, D57]

E166.1 The operator shall keep all openings from this equipment closed when in use except during inspection, sampling or maintenance.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 402, 5-7-1976]

[Devices subject to this condition : D9, D10, D11, D12, D13, D14, D15, D19, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D33, D36, D45]

E57.2 The operator shall vent this equipment to a vapor recovery system or air pollution control system operating with a valid permit to operate from the SCAQMD whenever this equipment is operating.

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition: D20]

C8.2 The operator shall use this equipment in such a manner that the temperature being monitored, as indicated below, is not less than 1450 Deg F.

To comply with this condition, the operator shall monitor the temperature as specified in condition number 12-3.


[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition: C38]

D12.1 The operator shall install and maintain a(n) gauge to accurately indicate the oxygen concentration in the afterburner.

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition: C38]

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D12.3 The operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature in the afterburner.

The operator shall also install and maintain a device to continuously record the parameter being measured.

[RULE 1303(a) (1)-BACT, 5-10-1996; RULE 3004(a) (4)-Periodic Monitoring, 8-11-1995]

[Devices subject to this condition: C38]

D28.1 The operator shall conduct source test(s) in accordance with the following specifications:

The test shall be conducted at least once during the life of the permit.

The test shall be conducted to determine the ROG emissions at the inlet and outlet simultaneously.

The test shall be conducted to determine the ROG emissions using District method 25.1 measured over a 60 minute averaging time period.

The test shall be conducted to demonstrate compliance with Rule 1141.

[RULE 3004(a) (4)-Periodic Monitoring, 8-11-1995]

[Devices subject to this condition: C38]

C1.3 The operator shall limit the exhaust flow to no more than 4800 cubic feet per minute.


[RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002]

[Devices subject to this condition: C58]

C6.1 The operator shall use this equipment in such a manner that the organic vapor concentration being monitored, as indicated below, does not exceed 8 ppm.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002]

[Devices subject to this condition: C58, C62]

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D12.7 The operator shall install and maintain a(n) flow meter to accurately indicate the flow rate of the total vent air to this system.

[RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002]

[Devices subject to this condition: C58]

D28.2 The operator shall conduct source test(s) in accordance with the following specifications:

The test shall be conducted to determine the VOC emissions at the inlet and outlet.

The test shall be conducted within 90 days after achieving maximum production rate, but no later than 180 days after initial start-up.

The District shall be notified of the date and time of the test at least 10 days prior to the test.

The test shall be conducted to demonstrate compliance with VOC emission concentrations.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]

[Devices subject to this condition: C58]

D90.1 The operator shall periodically monitor the VOC concentrations at outlet of the second and third carbon vessels according to the following specifications:

The operator shall calibrate the instrument used to monitor the parameter in ppmv methane.


The operator shall monitor once every day.

The monitoring device shall have a detection range to accurately measure 8 ppmv methane and have an accuracy of 98% or better of the device monitoring range, and it shall be calibrated once a week.

[Rule 3004(a)(4)-Periodic Monitoring, 12-12-1997]

[Devices subject to this condition : C58]

D90.2 The operator shall periodically monitor the VOC concentrations at outlet of first and second carbon vessels according to the following specifications:

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The operator shall calibrate the instrument used to monitor the parameter in ppmv methane.

The operator shall monitor once every week.

The monitoring device shall have a detection range to accurately measure 8 ppmv methane and have an accuracy of 98% or better of the device monitoring range, and it shall be calibrated once a week.

[RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997]

Devices subject to this condition C62]

EI 53.1 The operator shall change over the carbon in the adsorber whenever breakthrough occurs.

For the purpose of this condition, breakthrough shall be defined as when VOC monitoring indicates a concentration of 8.0 ppmv or greater at the outlet of the second carbon vessel (first carbon vessel is the upstream carbon vessel, second carbon vessel is the mid vessel, and third carbon vessel is last vessel in series).

To change over carbon, the operator shall replace spent carbon with fresh carbon in the first and second vessels within 48 hours after breakthrough has been detected at the outlet of second carbon vessel. And the vapor flow shall be reconfigured such that the third carbon vessel become first, and the vessels with fresh carbon are second and third vessels in series.


[Rule 3004(a)(4)-Periodic Monitoring, 12-12-1997]

[Devices subject to this condition C58]

EI 53.2 The operator shall change over the carbon in the adsorber whenever breakthrough occurs.

For the purpose of this condition, breakthrough shall be defined as when VOC monitoring indicates a concentration of 8.0 ppmv or greater at the outlet of first carbon vessel (first carbon vessel is the upstream carbon vessel).

To change over carbon, the operator shall replace spent carbon with fresh carbon in the first vessel within 48 hours after breakthrough has been detected at the outlet of first carbon vessel. And the vapor flow shall be reconfigured such that the second carbon vessel becomes first vessel in series, and the vessel with fresh carbon is the second vessel in series.

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[RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997]


[Devices subject to this condition C62]

EMISSIONS:

Material processing and throughput will remain as same as before; therefore there should be no changes in emissions for the basic equipment. The afterburner may operate less as the reactors may not be operated seven days a week as previously permitted. However, since the facility may operate continuously, we will assume maximum operating schedule (as previously permitted). We will use the same mass emission rates calculated for previous applications. For each application the data and emission calculation method will be listed. Since the afterburner efficiency was 98.8%, the same efficiency will be required for the carbon system. VOC are the only air contaminant emitted from the tanks. Reactors are equipped with natural gas fired heaters, therefore emitting combustion air contaminant as well. There are two types of control equipment 1- thermal oxidizer which control VOC emissions from the reactors, and 2- activated carbon train which controls vapors from process and storage tanks. There are two 219 exempt tanks that are currently vented to the afterburner. These tanks will be vented to two their own passive carbon system (A/N 501160). All the equipment will have an operating schedule of 24 hours/day, 7 days/week, 52 weeks/year. Facility uses over 100 raw materials and producing over 200 product mix. Five compounds make 81% (by weight) of the total material used. Styrene makes about 35% of the total raw material used. The Major annual material use is as follow:

Raw Material	Raw material Lb/year	Raw Material Ratio
Styrene	7,207,617.4	0.35
Maleic Anhydride	3,550,203.0	0.17
DCPD-Refined	2,599,635.7	0.13
Diethylene Glycol	1,814,509.7	0.09
Propylene Glycol	1,533,004.8	0.07
	Total	0.81

Material	Molecular formula	MW lb/mole	Vapor press mmHg - (PSI)	Boiling point	Density
Styrene	C ₈ H ₈	104.15	5.0300 - (0.0970) @ 20 ⁰ C	145 ⁰ C	0.909 g/cm ³
Maleic Anhydride	C ₄ H ₂ O	98.06	0.1600 - (0.0031) @ 20 ⁰ C	202 ⁰ C	1.480 g/cm ³
DCPD-Refined	C ₁₀ H ₁₂	132.2	1.3500 - (0.0260) @ 20 ⁰ C	170 ⁰ C	0.980 g/cm ³
Diethylene Glycol	C ₄ H ₁₀ O ₃	106.12	0.0097 - (0.0002) @ 20 ⁰ C	244 ⁰ C	1.118 g/cm ³
Propylene Glycol	C ₃ H ₈ O ₂	76.09	0.0795 - (0.0015) @ 20 ⁰ C	188 ⁰ C	1.036 g/cm ³

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The styrene content of the products ranges from 25% to 55%. Styrene is used most, Maleic Anhydride is the second widely used raw material, and Dicyclopentadiene (DCPD) ranks third in usage. These materials are received in liquid form and kept in liquid form before usage. Styrene and DCPD by far has the highest vapor pressure of the compounds above, and Maleic Anhydride is kept liquid at elevated temperature. As stated earlier, AOC produces over 200 different products with different ratios. The styrene content of the product would not go over 55%. Therefore an assumption that material processed will contain 54% styrene, 26% Maleic Anhydride, and 20% DCPD will result in a reasonable and conservative assessment of VOC emitted. These percentages are driven from dividing the individual raw material ratios to the sum of the compounds ratios (three compounds). For all the product tanks and mix tanks we will assume a vapor pressure and density for the mix. For raw material tanks, we will use the vapor pressure for the respective raw materials.

Material	Molecular formula	MW lb/mole	Weight Fraction	Moles	Mole Fraction	Vapor Pressure mmHg	Partial Vapor Pressure mmHg
Styrene	C ₈ H ₈	104.15	0.54	0.005185	0.555	5.03	2.792
Maleic Anhydride	C ₄ H ₂ O	98.06	0.26	0.002651	0.283	0.16	0.045
DCPD-Refined	C ₁₀ H ₁₂	132.2	0.20	0.001513	0.162	1.35	0.219
Total			1.0	0.009349	1.000		3.056

Partial vapor pressure = (Pure vapor pressure)(Mole fraction)

Example: Partial vapor pressure_(styrene) = (5.03 mmHg) (0.555) = 2.792 mmHg

The vapor pressure of the mix at equilibrium is equal to the sum of partial vapor pressures.

Thin tanks and mix tanks operated at elevated temperatures. All storage tanks except maleic tank and phthalic tank are operated at ambient temperature.

Vapor pressure of MIX = Sum of partial vapor pressure


Vapor Pressure (MIX) = 2.792 mmHg + 0.045 mmHG + 0.219 mmHg = **3.056 mmHg = 0.059 PSI**

Density of a MIX = Sum of the density of each compound times its weight fraction

Density of MIX = (0.909 g/cm³)(0.54)+ (1.480 g/cm³)(0.26)+(0.980 g/cm³)(0.2) = 1.072 g/cm³
= **8.95 lb/gallon**

The emissions from all the tanks (storage tanks and mix tanks) can be assessed using the following equations:

Working loss:

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$$L_W = (F)(1 \text{ cft}/7.48 \text{ gal})(1 \text{ lb-mole}/380 \text{ cf})(M)(P/14.7 \text{ psia})$$

$$= 2.4 \times 10^{-5} \times F \times M \times P$$

Breathing loss:

$$L_B = (V)(\Delta T/T_{avg})(1 \text{ lb-mole}/380 \text{ cf})(M)(P/14.7 \text{ psia})$$

$$= 1.79 \times 10^{-4} \times V \times (\Delta T/T_{avg}) \times M \times P$$

Where for working loss:

L_W = working loss (lb/day)
 F = filling rate (gal/day)
 P = true vapor pressure (psi)
 M = molecular weight of vapor (lb/lb-mole)

For breathing loss:

L_B = breathing loss (lb/day)
 V = volume of vapor above liquid (Cf)
 ΔT = average daily temperature change (R)
 T_{avg} = average daily temperature (R or F)
 P = true vapor pressure
 M = molecular weight of vapor (lb/lb-mole)

The **equivalent molecular weight** of the vapor can be estimated as follow:

$$MW_{mix} = \left(\frac{MW_a \cdot P_a \cdot X_a}{P_t} \right) + \left(\frac{MW_b \cdot P_b \cdot X_b}{P_t} \right) + \dots$$

Where:


MW_a & MW_b are molecular weight of pure substances a & b
 P_a & P_b are vapor pressure of the pure substances a & b, and
 P_t is sum of partial vapor pressure in liquid.

$$MW_{mix} = \left(\frac{104.15 \cdot 5.03 \cdot 0.555}{3.06} \right) + \left(\frac{98.06 \cdot 0.16 \cdot 0.283}{3.06} \right) + \left(\frac{132.2 \cdot 1.35 \cdot 0.162}{3.06} \right)$$

$$MW_{mix} = 95.02 + 1.45 + 9.45 = \underline{\underline{105.92 \text{ lb/mole}}}$$

A/N 501142, SAMPLE MIXER, D19, (previous 344456):

Sample mixing is a batch process. Facility could mix up to 0.261 million lb/month. The sample mixer could be operated 24 hrs/day, 7 days/week, and 52 weeks/year. We will apply the calculated

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mix property values calculated above for this equipment. The mixing conducted at ambient temperature.

Schedule: 24 hrs/day, 7days/week, 52 weeks/year
 Material: MIX
 Throughput: 0.261 million lb/month
 Density: 8.95 lb/gal (mix)
 Vapor pressure: 0.059 psi @ 20 °C
 MW: 105.92 lb/mole
 Tank Temperature: Ambient (20 °C)

The emissions from this equipment are just due to working losses. The emissions can be assessed using the following equations:

Working loss:

$$L_w = 2.4 \times 10^{-5} \times F \times M \times P$$

$$F = [0.261 \text{ MMlb/month}] / [8.95 \text{ lb/gal}] = \mathbf{29,162 \text{ gal/month}}$$

$$\begin{aligned}
 L_w &= 2.4 \times 10^{-5} \times 29162 \times 105.92 \times 0.059 = \mathbf{4.37 \text{ lb/month}} \\
 &= \mathbf{0.15 \text{ lb/day}} \\
 &= \mathbf{0.01 \text{ lb/hr}} \\
 &= \mathbf{52.44 \text{ lb/year}}
 \end{aligned}$$


The mix tank previously did not vent to a control equipment. Upon modification the mix tank will vent to the facility's new carbon system. A removal efficiency of 98.8% will be required for carbon system. Therefore controlled VOC emission for this operation is:

$$\begin{aligned}
 \text{Controlled VOC} &= (1 - 0.988)(0.15 \text{ lb/day}) = \mathbf{0.00074 \text{ lb/day}} \\
 &= \mathbf{0.00007 \text{ lb/hr}} \\
 &= \mathbf{0.64 \text{ lb/year}}
 \end{aligned}$$

A/N 501143, BULK MTERIAL LOADING, D20, (previous 344458):

Maximum product shipped by the facility is 7.26 million pounds per month. The products shipped are either base resin or custom resin products. We will apply the calculated mix property data (calculated earlier) for this equipment

Throughput: 7.26 MMlb/month

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Density: 8.95 lb/gal (mix)
Vapor pressure: 0.059 psi @ 20 °C
MW: 105.92 lb/mole

Working loss:

$$L_w = 2.4 \times 10^{-5} \times F \times M \times P$$

$$F = [7.26 \text{ MMLb/month}] / [8.95 \text{ lb/gal}] = \mathbf{811,173 \text{ gal/month}}$$

$$L_w = 2.4 \times 10^{-5} \times 811,173 \times 105.92 \times 0.059 = \mathbf{121.7 \text{ lb/month}}$$

$$= \mathbf{4.06 \text{ lb/day}}$$

This equipment does not have any storage tank; no breathing losses will be calculated for this equipment.

The equipment will be vented to an activated carbon system with 98.8% efficiency

$$\text{VOC controlled} = (1 - 0.998)(4.06 \text{ lb/day}) = \mathbf{0.049 \text{ lb/day}}$$

$$= \mathbf{0.002 \text{ lb/hr}}$$

$$= \mathbf{17.76 \text{ lb/year}}$$

A/N 501144, RESIN STORAGE No. 1, D22 (previous 344460):

A/N 501148, RESIN STORAGE No. 2, D23 (previous 344463):

A/N 501145, RESIN STORAGE No. 3, D24 (previous 344467):

Base Resin Storage Tank No. 1, No. 2, and No. 3 are identical in size and operation. Material throughput for each tank is 0.574 MMLb/month. The calculation below is for one tank.

Operating schedule: 24hrs/day, 7 days/week, 52 weeks/year

Throughput: 0.574 MMLb/month **per tank**

Density: 8.95 lb/gal (mix)

Vapor pressure: 0.059 psi @ 20 °C

MW: 105.92 lb/mole


Operating Temp: Ambient (20 °C)

Delta T: 55° F

T avg: 65° F

Tank dimensions: 13'D. X 18'H., 2388 CF

Vapor space: 2388 CF x ½ = 1194 Cf

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Working loss:

$$L_W = 2.4 \times 10^{-5} \times F \times M \times P$$

$$F = [0.574 \text{ MMLb/month}] / [8.95 \text{ lb/gal}] = \mathbf{64,134 \text{ gal/month}}$$

$$L_W = 2.4 \times 10^{-5} \times 64,134 \text{ gal/month} \times 105.92 \times 0.059 = \mathbf{9.62 \text{ lb/month}}$$

$$= \mathbf{0.32 \text{ lb/day}}$$

Breathing loss:

$$L_B = (V)(\Delta T/T_{avg})(1 \text{ lb-mole}/380 \text{ cf})(M)(P/14.7 \text{ psia})$$

$$= 1.79 \times 10^{-4} \times V \times (\Delta T/T_{avg}) \times M \times P$$

$$= 1.79 \times 10^{-4} \times 1194 \times (55/525) \times 105.92 \times .059 = \mathbf{0.14 \text{ lb/day}}$$

$$\mathbf{\text{Total (uncontrolled) VOC emission} = \text{Working loss} + \text{Breathing loss} = \mathbf{0.46 \text{ lb/day}}}$$

$$= \mathbf{0.02 \text{ lb/hr}}$$

$$\mathbf{\text{Controlled VOC} = (1-0.988)(0.46 \text{ lb/day}) = \mathbf{0.0055 \text{ lb/day}}}$$

$$= \mathbf{0.00023 \text{ lb/hr}}$$

$$= \mathbf{2.02 \text{ lb/year}}$$

A/N 501146, RESIN STORAGE No. 4, D25 (previous 344470):

A/N 501147, RESIN STORAGE No. 5, D26 (previous 344473):

A/N 501151, RESIN STORAGE No. 8, D29 (previous 344476):

A/N 501153, RESIN STORAGE No. 9, D30 (previous 344482):

A/N 501154, RESIN STORAGE No. 10, D31 (previous 344483):

Resin Storage Tank No. 4, No. 5, No. 8, No. 9, and No. 10 are identical in size and operation. Material throughput for each tank is 0.49 MMLb/month. The calculation below is for one tank.

Operating schedule: 24hrs/day, 7 days/week, 52 weeks/year

Throughput: 0.49 MMLb/month **per tank**

Density: 8.95 lb/gal (mix)

Vapor pressure: 0.059 psi @ 20 °C


MW: 105.92 lb/mole

Operating Temp: Ambient (20 °C)

Delta T: 55 °F

T avg: 65 °F

Tank dimensions: 112'D. X 18'H., 2034.7 CF

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Vapor space: $2034.7 \text{ CF} \times \frac{1}{2} = 1017.35 \text{ Cf}$

Working loss:

$$L_W = 2.4 \times 10^{-5} \times F \times M \times P$$

$$F = [0.49 \text{ MMLb/month}] / [8.95 \text{ lb/gal}] = \mathbf{54,749 \text{ gal/month}}$$

$$L_W = 2.4 \times 10^{-5} \times 54,749 \text{ gal/month} \times 105.92 \times 0.059 = \mathbf{8.21 \text{ lb/month}}$$

$$= \mathbf{0.27 \text{ lb/day}}$$

Breathing loss:

$$L_B = (V)(\Delta T/T_{avg})(1\text{lb-mole}/380 \text{ cf})(M)(P/14.7 \text{ psia})$$

$$= 1.79 \times 10^{-4} \times V \times (\Delta T/T_{avg}) \times M \times P$$

$$= 1.79 \times 10^{-4} \times 1017.35 \times (55/525) \times 105.92 \times .059 = \mathbf{0.12 \text{ lb/day}}$$

$$\mathbf{\text{Total (uncontrolled) VOC emission} = \text{Working loss} + \text{Breathing loss} = 0.27 + 0.12 = \mathbf{0.39 \text{ lb/day}}}$$

$$= \mathbf{0.0163 \text{ lb/hr}}$$

$$\mathbf{\text{Controlled VOC} = (1 - 0.988)(0.39 \text{ lb/day}) = \mathbf{0.0047 \text{ lb/day}}}$$

$$= \mathbf{0.0002 \text{ lb/hr}}$$

$$= \mathbf{1.72 \text{ lb/year}}$$

A/N 501149, RESIN STORAGE No. 6, D27, (previous 344479):

Operating schedule: 24hrs/day, 7 days/week, 52 weeks/year

Throughput: 0.38 MMLb/month

Density: 8.95 lb/gal (mix)

Vapor pressure: 0.059 psi @ 20 °C

MW: 105.92 lb/mole

Operating Temp: Ambient (20 °C)

Delta T: 55 °F


T avg: 65 °F

Tank dimensions: 12'D. X 14'H., 1583 CF

Vapor space: $1583 \text{ CF} \times \frac{1}{2} = 791.5 \text{ Cf}$

Working loss:

$$L_W = 2.4 \times 10^{-5} \times F \times M \times P$$

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$$F = [0.38 \text{ MMlb/month}] / [8.95 \text{ lb/gal}] = \mathbf{42,458 \text{ gal/month}}$$

$$L_w = 2.4 \times 10^{-5} \times 42458 \text{ gal/month} \times 105.92 \times 0.059 = \mathbf{6.37 \text{ lb/month}}$$

$$= \mathbf{0.21 \text{ lb/day}}$$

Breathing loss:

$$L_B = (V)(\Delta T/T_{avg})(1\text{lb-mole}/380 \text{ cf})(M)(P/14.7 \text{ psia})$$

$$= 1.79 \times 10^{-4} \times V \times (\Delta T/T_{avg}) \times M \times P$$

$$= 1.79 \times 10^{-4} \times 791.5 \times (55/525) \times 105.92 \times .059 = \mathbf{0.09 \text{ lb/day}}$$

$$\mathbf{\text{Total (uncontrolled) VOC emission}} = \text{Working loss} + \text{Breathing loss} = \mathbf{0.3 \text{ lb/day}}$$

$$= \mathbf{0.01 \text{ lb/hr}}$$

$$\mathbf{\text{Controlled VOC}} = (1-0.988)(0.56 \text{ lb/day}) = \mathbf{0.0037 \text{ lb/day}}$$

$$= \mathbf{0.00015 \text{ lb/hr}}$$

$$= \mathbf{1.34 \text{ lb/year}}$$

A/N 501150, RESIN STORAGE No. 7, D28, (previous 344481):

Operating schedule: 24hrs/day, 7 days/week, 52 weeks/year

Throughput: 0.68 MMlb/month

Density: 8.95 lb/gal (mix)

Vapor pressure: 0.059 psi @ 20 °C

MW: 105.92 lb/mole

Operating Temp: Ambient (20 °C)

Delta T: 55 °F

T avg: 65 °F


Tank dimensions: 15.7'D. X 16'H., 3096 CF

Vapor space: 3096 CF x ½ = 1548 Cf

Working loss:

$$L_w = 2.4 \times 10^{-5} \times F \times M \times P$$

$$F = [0.68 \text{ MMlb/month}] / [8.95 \text{ lb/gal}] = \mathbf{75,978 \text{ gal/month}}$$

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$$L_w = 2.4 \times 10^{-5} \times 75,978 \text{ gal/month} \times 105.92 \times 0.059 = \underline{\underline{11.4 \text{ lb/month}}}$$

$$= \underline{\underline{0.38 \text{ lb/day}}}$$

Breathing loss:

$$L_B = (V)(\Delta T/T_{avg})(1\text{lb-mole}/380 \text{ cf})(M)(P/14.7 \text{ psia})$$

$$= 1.79 \times 10^{-4} \times V \times (\Delta T/T_{avg}) \times M \times P$$

$$= 1.79 \times 10^{-4} \times 1548 \times (55/525) \times 105.92 \times .059 = \underline{\underline{0.18 \text{ lb/day}}}$$

$$\text{Total (uncontrolled) VOC emission} = \text{Working loss} + \text{Breathing loss} = \underline{\underline{0.56 \text{ lb/day}}}$$

$$= \underline{\underline{0.02 \text{ lb/hr}}}$$

$$\text{Controlled VOC} = (1-0.988)(0.56 \text{ lb/day}) = \underline{\underline{0.0067 \text{ lb/day}}}$$

$$= \underline{\underline{0.00028 \text{ lb/hr}}}$$

$$= \underline{\underline{2.46 \text{ lb/year}}}$$

A/N 501155, STYRENE STORAGE, D32 & D33, (previous 451095):

There are two tanks under this permit application. The tanks are identical in size and operation. Each tank is 13' in diameter and 18' height. The throughput for each tank is 0.94 MMLb/month.

Operating schedule: 24hrs/day, 7 days/week, 52 weeks/year

Throughput: 0.94 MMLb/month **per tank**

Density: 7.59 lb/gal (mix)

Vapor pressure: 0.097 psi @ 20 °C

MW: 104.15 lb/mole

Operating Temp: Ambient (20 °C)

Delta T: 55° F

T avg: 65° F


Tank dimensions: 13'D. X 18'H., 2388 CF

Vapor space: 2388 CF x 1/2 = 1194 CF

Working loss:

$$L_w = 2.4 \times 10^{-5} \times F \times M \times P$$

$$F = [0.94 \text{ MMLb/month}] / [7.59 \text{ lb/gal}] = \underline{\underline{123,847 \text{ gal/month}}}$$

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$$L_w = 2.4 \times 10^{-5} \times 123,847 \text{ gal/month} \times 105.92 \times 0.059 = \underline{\underline{30.03 \text{ lb/month}}}$$

$$= \underline{\underline{1.0 \text{ lb/day}}}$$

Breathing loss:

$$L_B = (V)(\Delta T/T_{avg})(1\text{lb-mole}/380 \text{ cf})(M)(P/14.7 \text{ psia})$$

$$= 1.79 \times 10^{-4} \times V \times (\Delta T/T_{avg}) \times M \times P$$

$$= 1.79 \times 10^{-4} \times 1194 \times (55/525) \times 105.92 \times .059 = \underline{\underline{0.23 \text{ lb/day}}}$$

$$\text{Total VOC emission (per tank)} = \text{Working loss} + \text{Breathing loss} = \underline{\underline{1.23 \text{ lb/day}}}$$

$$= \underline{\underline{0.05 \text{ lb/hr}}}$$

$$\text{Total VOC emission (per permit unit)} = (1.23 \text{ lb/day})(2) = \underline{\underline{2.46 \text{ lb/day}}}$$

$$= \underline{\underline{0.1 \text{ lb/hr}}}$$

$$\text{Controlled VOC} = (1-0.988)(2.46 \text{ lb/day}) = \underline{\underline{0.03 \text{ lb/day}}}$$

$$= \underline{\underline{0.00123 \text{ lb/hr}}}$$

$$= \underline{\underline{10.74 \text{ lb/year}}}$$

A/N 501156, RINSE TANK, STYRENE, D45, (previous 459523):

Operating schedule: 24hrs/day, 7 days/week, 52 weeks/year

Throughput: 0.15 MMlb/month

Density: 7.59 lb/gal (mix)

Vapor pressure: 0.097 psi @ 20 °C

MW: 104.15 lb/mole

Operating Temp: Ambient (20 °C)

Delta T: 55 °F

T avg: 65 °F


Tank dimensions: 8'D. X 14'H., 703 CF

Vapor space: 703 CF x ½ = 351.5 CF

Working loss:

$$L_w = 2.4 \times 10^{-5} \times F \times M \times P$$

$$F = [0.15 \text{ MMlb/month}] / [7.59 \text{ lb/gal}] = \underline{\underline{19,763 \text{ gal/month}}}$$

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$$L_w = 2.4 \times 10^{-5} \times 19,763 \text{ gal/month} \times 105.92 \times 0.097 = \underline{\underline{4.79 \text{ lb/month}}}$$

$$= \underline{\underline{0.16 \text{ lb/day}}}$$

Breathing loss:

$$L_B = (V)(\Delta T/T_{avg})(1\text{lb-mole}/380 \text{ cf})(M)(P/14.7 \text{ psia})$$

$$= 1.79 \times 10^{-4} \times V \times (\Delta T/T_{avg}) \times M \times P$$

$$= 1.79 \times 10^{-4} \times 351.5 \times (55/525) \times 105.92 \times .097 = \underline{\underline{0.07 \text{ lb/day}}}$$

$$\text{Total VOC emission (per tank)} = \text{Working loss} + \text{Breathing loss} = \underline{\underline{0.23 \text{ lb/day}}}$$

$$= \underline{\underline{0.01 \text{ lb/hr}}}$$

$$\text{Controlled VOC} = (1-0.988)(2.46 \text{ lb/day}) = \underline{\underline{0.003 \text{ lb/day}}}$$

$$= \underline{\underline{0.0001 \text{ lb/hr}}}$$

$$= \underline{\underline{0.99 \text{ lb/year}}}$$

A/N 501157, REACTOR, RESIN, D1, D2, D3, D4, C43, C44, D7, D8, D9, D10, D11, D12, D13, D14, D15, D17, & D18, (previous 451093):

D1, D2, D3, D4, C43, C44 are device numbers for the reactors and their associated burners and internal condensers. There will be no changes to these devices or their vent configuration. They will continue to vent to the afterburner. However since they belong to the same permit unit, their emissions must be accumulated in NSR for the current application (501157). In accordance to previous evaluation, the VOC emissions vented to after burner is about .08 lb/hr after control. That will put the emission before control at about 6.67 lb/hr. The reactors VOC emissions and the combustion air contaminants from the heaters are:

$$\text{VOC (reactors, uncontrolled)} = 6.67 \text{ lb/hr}$$

$$= 160 \text{ lb/day}$$

$$\text{VOC (reactors, controlled)} = 0.08 \text{ lb/hr}$$

$$= 1.92 \text{ lb/day}$$


$$= 700.8 \text{ lb/day}$$

The combustion emission from the heaters are:

Two N.G. fired heaters, one rated 3.288 mmbtu/hr and one 4.0 mmbtu/hr

$$\text{Total rating} = 7.288 \text{ mmbtu/hr}$$

Operating schedule: 24hrs/day, 7 days/week, 52 weeks/year

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Emission factor for natural gas for external combustion:

POLLUTANT	LB/MMCF
CO:	35.00
NOX:	130.00
PM10:	7.50
ROG:	7.00
SOX:	0.83

Fuel consumption = (7,288,000 btu/hr) / (1050 btu/cf) = 6941 cf/hr


POLLUTANT	LB/MMCF	CF/HR	LB/HR	LB/DAY	LB/YEAR
CO	35.00	6,941	0.2429	5.83	2,099
NOX	130.00	6,941	0.9023	21.66	7,796
PM10	7.50	6,941	0.0521	1.25	450
ROG	7.00	6,941	0.0486	1.17	420
SOX	0.83	6,941	0.0058	0.14	50

Process tank emissions:

D7 and D8 are thin tanks, D9 through D15 are mix tanks, and D17 and D18 are drum filling equipment. The emissions associated with the equipment are working emissions only. Tank formula will be used to calculate emissions for this permit unit.

Operating schedule: 24hrs/day, 7 days/week, 52 weeks/year

Dvice	Device	Throughput	MW	Density	Temp	VP psi	VP psi
No	Description	MMlb/mo.	lb/mole	lb/gallon	F	20 'C	@ temp. F
D7	Thin Tank 1	3.094	105.92	8.95	179	0.059	1.7726
D8	Thin Tank 2	4.166	105.92	8.95	179	0.059	1.7726
D9	Mix Tank 7	2.128	105.92	8.95	115	0.059	0.3974
D10	Mix Tank 1	1.519	105.92	8.95	115	0.059	0.3974
D11	Mix Tank 2	1.473	105.92	8.95	115	0.059	0.3974
D12	Mix Tank 3	1.331	105.92	8.95	115	0.059	0.3974
D13	Mix Tank 4	3.334	105.92	8.95	115	0.059	0.3974
D14	Mix Tank 5	3.894	105.92	8.95	115	0.059	0.3974

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D15	Mix Tank 6	3.453	105.92	8.95	115	0.059	0.3974
D17	Drum filling	2.659	105.92	8.95	68	0.059	0.059
D18	Drum filling	2.659	105.92	8.95	68	0.059	0.059

Working loss:

$$L_w = 2.4 \times 10^{-5} \times F \times M \times P$$

Emission for each device is calculated using the tank working loss formula and the data tabulated.
The total emissions are:

$$\begin{aligned} L_w &= 189.27 \text{ lb/day} \\ &= 7.89 \text{ lb/hr} \end{aligned}$$

$$\begin{aligned} \text{Controlled VOC} &= (1 - 0.988)(189.27) = 2.27 \text{ lb/day} \\ &= 0.1 \text{ lb/hr} \end{aligned}$$


Total emissions from this permit unit is the sum of the reactors' emissions and the process tanks emissions:

$$\begin{aligned} \text{Total VOC (uncontrolled)} &= \text{Reactor VOC} + \text{Burners VOC} + \text{Tanks VOC} \\ &= 6.67 \text{ lb/hr} + 0.0486 \text{ lb/hr} + 7.89 \text{ lb/hr} = 14.6086 \text{ lb/hr} \\ &= 350.64 \text{ lb/day} \end{aligned}$$

$$\begin{aligned} \text{Total VOC (controlled)} &= 0.08 \text{ lb/hr} + 0.0486 \text{ lb/hr} + 0.1 \text{ lb/hr} = 0.2286 \text{ lb/hr} \\ &= 5.4864 \text{ lb/day} \\ &= 2003 \text{ lb/year} \end{aligned}$$

The criteria pollutants for the permit are:

POLLUTANT	UNCONTROLLED LB/HR	UNCONTROLLED LB/DAY	CONTROLLED LB/HR	CONTROLLED LB/DAY	LB/YEAR
CO	0.2429	5.83	0.2429	5.83	2,099
NOX	0.9023	21.66	0.9023	21.66	7,796
PM10	0.0521	1.25	0.0521	1.25	450
ROG	14.6086	350.64	0.2286	5.49	2003
SOX	0.0058	0.14	0.0058	0.14	50

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A/N 501158, APC, AFTERBURNER, C38 (previous 385252):

The afterburner will only vent two reactors and a curing oven. The curing oven has not operated for years and if any, it will be operated very infrequently. The intention is to operate the reactors 5 days a week and shut the reactors down for weekend. However, if product demand exist, the reactors will operate 24 hrs/day, 7 days/week. The emissions will be calculated assuming maximum utilization.

Operating schedule: 24hrs/day, 7 days/week, 52 weeks/year
 Btu rating: 7.5 mmbtu /hr

Emission factor for natural gas for external combustion:

POLLUTANT	LB/MMCF
CO:	35.00
NOX:	130.00
PM10:	7.50
ROG:	7.00
SOX:	0.83

Fuel consumption = (7,500,000 btu/hr) / (1050 btu/cf) = 7142.9 cf/hr

POLLUTANT	LB/MMCF	CF/HR	LB/HR	LB/DAY	LB/YEAR
CO	35.00	7142.9	0.2500	6.00	2160
NOX	130.00	7142.9	0.9286	22.29	8023
PM10	7.50	7142.9	0.0536	1.29	463
ROG	7.00	7142.9	0.0500	1.20	432
SOX	0.83	7142.9	0.0059	0.14	51


The emission from the equipment vented to this afterburner is accumulated under their own NSR account. The emissions from this equipment (except ROG) are exempt under 1304(C)(4).

A/N 501159, APC, ACTIVATED CARBON (new installation):

Data:

Blower: 4800 CFM
 Inlet Emission: 200.8 lb/day or 8.37 lb/hr
 Control efficiency: 98.8%

This APC system will control VOC vapors emitted from most equipment at the facility. Initially the afterburner was used to control VOC from the equipment. The modification will allow the facility to

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shut the afterburner when reactors are not operating and still controlling VOC emission from tanks and loading operation. The system will operate 24 hrs/day, 7 days/week.

The carbon system is a non-emitting control equipment. The emissions from the basic equipment are accumulated under the application for basic equipment. The emission calculation below is to estimate the useful life of the carbon system before change-out and to establish a monitoring frequency.

Based on the emission calculations for the basic equipment, the VOC loading to the carbon will be about 200.8 lb/day or 8.37 lb/hr.

There are three 8000 lb carbon constructed in series. For VOC removal only the contribution of the first two carbon vessels will be considered. We will assume carbon can only adsorb 10% of its weight before it saturate (10% VOC adsorption capacity). This is a conservative estimate. Carbon manufacturer estimates the adsorption capacity for styrene monomer is 20 to 50 percent.

$(8000 \text{ lb carbon /vessel})(2 \text{ vessel}) = 16000 \text{ lb carbon}$

$(16000 \text{ lb carbon})(0.1 \text{ lb VOC/lb carbon}) = 1600 \text{ lb of VOC}$

The first two carbon vessels can capture 1600 lb of VOC before VOC breakthrough occurs.

$1600 \text{ lb VOC} / 200.8 \text{ lb/day} = 7.96 \approx 8 \text{ days before breakthrough occurs.}$

It will be required that facility monitors for VOC at the outlet of the second vessel and third vessel once a day at PC stage. The monitoring frequency may be changed to once a week when issuing permit to operate, given the data support the change.

The blower maximum rating is 4800 scfm. For emission loading of 8.37 lb/hr, the inlet concentration can be calculated as follow:

Emission Rate = $(4800 \text{ scfm})(\text{Emission Concentration PPMV})(\text{MW})(1 \text{ lb-mole}/379\text{cf})(60 \text{ min/hr})$


$8.37 \text{ lb/hr} = (4800 \text{ scfm})(\text{Concentration})(105.92 \text{ lb-mole/mole})(1\text{lb-mole}/379\text{cf})(60 \text{ min/hr})$

Concentration = 104 ppmv = 688 ppmv as methane at the inlet to the carbon system.

The carbon must comply with 98.8 % removal, therefore the concentration at the outlet of the second carbon vessel shall not exceed:

Controlled concentration = $(688 \text{ ppmv})(1-0.988) = 8.25 \text{ ppmv methane.}$ It will be required that facility replaces carbon when the VOC concentration (measured as methane) reaches 8 ppmv at the outlet of the second carbon vessel.

A/N 501160, APC, ACTIVATED CARBON (new installation):

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Two tanks storing dicyclopentadiene (DCPD) are currently vented to afterburner. The tanks are not listed on the permit as they are Rule 219 exempt equipment. The vapor pressure of the DCPD is 0.026 psi @20⁰C. Upon modification these tanks will passively vent to a dedicated carbon system consisting of two 55galons carbon canisters. The maximum monthly throughput for DCPD will not exceed 0.452 MMlb/month per tank.

Operating schedule: 24hrs/day, 7 days/week, 52 weeks/year

Throughput: 0.452 MMlb/month per tank

Density: 8.17 lb/gal

Vapor pressure: 0.026 psi @ 20⁰C

MW: 132.2 lb/mole

Operating Temp: Ambient (20⁰C)

Delta T: 55⁰ F

T avg: 65⁰ F

Tank No. 1 dimensions: 12.5'D. X 18'H., 2208 CF

Vapor space: 2208 CF x ½ = 1104 CF

Tank No. 2 dimensions: 14'D. X 12'H., 1846 CF

Vapor space: 2208 CF x ½ = 923 CF

Tank No. 1

Working loss:

$$L_w = 2.4 \times 10^{-5} \times F \times M \times P$$

$$F = [0.452 \text{ MMlb/month-tank}] / [8.17 \text{ lb/gal}] = \mathbf{55,324 \text{ gal/month-tank}}$$

$$L_w = 2.4 \times 10^{-5} \times 55,324 \text{ gal/month} \times 132.2 \times 0.026 = \mathbf{4.56 \text{ lb/month}}$$

$$= \mathbf{0.15 \text{ lb/day}}$$

Breathing loss:

$$L_B = (V)(\Delta T/T_{avg})(1\text{lb-mole}/380 \text{ cf})(M)(P/14.7 \text{ psia})$$

$$= 1.79 \times 10^{-4} \times V \times (\Delta T/T_{avg}) \times M \times P$$


$$= 1.79 \times 10^{-4} \times 923 \times (55/525) \times 132.2 \times 0.026 = \mathbf{0.07 \text{ lb/day}}$$

$$\mathbf{VOC \text{ emission (Tank No. 1)} = Working loss + Breathing loss = 0.22 \text{ lb/day}}$$

$$= \mathbf{0.01 \text{ lb/hr}}$$

Tank No. 2:

$$L_w = 2.4 \times 10^{-5} \times 55,324 \text{ gal/month} \times 132.2 \times 0.026 = \mathbf{4.56 \text{ lb/month}}$$

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$$= \underline{\underline{0.15 \text{ lb/day}}}$$

$$L_B = 1.79 \times 10^{-4} \times 1104 \times (55/525) \times 132.2 \times 0.026 = \underline{\underline{0.06 \text{ lb/day}}}$$

$$\text{VOC emission (Tank No. 2)} = \text{Working loss} + \text{Breathing loss} = \underline{\underline{0.21 \text{ lb/day}}}$$

$$= \underline{\underline{0.01 \text{ lb/hr}}}$$

$$\text{Total VOC emission for the permit unit} = \text{Tank 1 emissions} + \text{Tank 2 emissions}$$

$$= 0.22 \text{ lb/day} + 0.21 \text{ lb/day} = \underline{\underline{0.43 \text{ lb/day}}}$$

$$= \underline{\underline{0.02 \text{ lb/day}}}$$

$$\text{Total Controlled VOC emissions} = (1-0.988)(0.43 \text{ lb/day}) = \underline{\underline{0.0052 \text{ lb/day}}}$$

$$= \underline{\underline{0.0002 \text{ lb/hr}}}$$

$$= \underline{\underline{1.91 \text{ lb/year}}}$$

Carbon monitoring and replacement:

For VOC removal only the contribution of the first carbon drum will be considered. We will assume the adsorption capacity of the carbon is 10%.

$$(150 \text{ lb carbon})(0.1 \text{ lb VOC/lb carbon}) = 15 \text{ lb of VOC}$$

The first carbon drum can capture 15 lb of VOC before VOC breakthrough occurs.

The emission rate to the carbon system is 0.43 lb/day, therefore

$$15 \text{ lb VOC} / 0.43 \text{ lb-day} = 34.88 \approx 30 \text{ days before breakthrough occurs.}$$

It will be required that facility monitors for breakthrough once a week.


HEALTH RISK ASSESSMENT:

There are no emission increases, HRA is not required.

RULE EVALUATION:

CEQA: California Environmental Quality Act (CEQA)

The modification of the equipment above are not considered significant project.
CEQA evaluation is not required.

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Rule 212: Standards for Approving Permits:

There is no increase in throughput and no increase emission of criteria pollutant or toxic emissions. And there are no schools within 1000 feet from the facility. Public Notice is not required.

Rule 401: Visible Emissions:

No visible emissions are expected from the equipment above and thus compliance with this rule is expected.

Rule 402: Public Nuisance:

With proper operation public nuisance is not expected.

Rule 404: Particulate Matter Concentration:

Particulate matter concentrations in excess of the Rule 404 is not expected.

Rule 462: Organic Liquid Loading:

This rule is intended to control emissions of volatile organic compounds (VOC) from facilities that load organic liquids with a vapor pressure of 1.5 psia (77.5 mm Hg) or greater under actual loading conditions into any tank truck, trailer, or railroad tank car. All raw materials and product in this project have a vapor pressure of less than 1.5 psia.


Rule 466: Pumps And Compressors:

A person shall not use any pump or compressor handling reactive organic compounds unless such pump or compressor is equipped with adequate seals in good working order or other devices of equal or greater efficiency. Reactive Organic Compound means any chemical compound which contains the element carbon, which has a Reid vapor pressure (RVP) greater than 80 mm Hg (1.55 pounds per square inch), or an absolute vapor pressure (AVP) greater than 36 mm Hg (0.7 psi) at 20°C excluding carbon monoxide, carbon dioxide, carbonic acid, carbonates and metallic carbides and excluding methane, 1,1,1-trichloroethane, methylene chloride, trifluoromethane, and chlorinated-fluorinated hydrocarbons. All materials and products in this project have vapor pressures less than 0.7 psi at 20°C. Compliance with this rule is expected.

Rule 1141. Control of Volatile Organic Compound Emissions from Resin Manufacturing:

A resin manufacturer shall not manufacture organic resin unless the total emissions of volatile organic compounds (VOC), from the organic resin reactor, thinning tank and blending tank vents, before being vented to the atmosphere, are reduced:

- 1- 0.5 lb per 1,000 lbs of product or by 95% or more;

 <p style="text-align: center;">SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</p> <p style="text-align: center;">ENGINEERING AND COMPLIANCE DIVISION</p> <p style="text-align: center;">PERMIT APPLICATION EVALUATION AND CALCULATIONS</p>	PAGES:	PAGE:
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	PROCESSED BY: H. N.	CHECKED BY:

- 2- In the case of the continuous polystyrene, VOC emissions must be limited to 0.12 lbs per 1,000 lb of product;
- 3- If the resin manufactured by other methods, VOC emissions must be reduced by 98% or more.

The operation above is a batch process. The total daily controlled VOC emission for the above equipment is 2.41 lbs per day. Controlled VOC emission from the reactors (not part of the evaluation above) is 2.16 lb/day. Therefore the resin operation will result in total VOC emission of 4.57 lb/day or 139 lb/month. The maximum operating capacity of the facility is 7.26 MMlb/month. The VOC emission are:

$(139 \text{ lb/month}) / (7.26 \text{ MMlb/month}) = 0.000019 \text{ lb VOC / lb of products or } 0.019 \text{ lb VOC / 1000 lb of products.}$ In compliance with this rule.

REGULATION XIII: New Source Review:

BACT: VOC is the only air contaminant associated with the equipment above. Thermal oxidizer and carbon system will be used to control VOC from operations at the site. 98.8% control efficiency for the equipment are expected. The equipment are categorized as BACT for VOC.

Modeling: There are no emission increases, modeling is not required.

Offset: There are no emission increases, offset is not required.

Rule 1401: New Source Review of Toxic Air Contaminants:


There is no emission increase as result of this project; therefore no increase in health risk. In compliance with the Rule.

Regulation XX: RECLAIM:

The facility is a NOX RECLAIM facility. There are no increase in NOX emission as the result of changes above, compliance is expected.

Regulation XXX: Title V Facilities:

The proposed permit revision is considered a de minimis significant permit revision to the facility's Title V permit. Compliance with requirements of Regulation XXX is expected.

 <p style="text-align: center;"> SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION PERMIT APPLICATION EVALUATION AND CALCULATIONS </p>	PAGES: <p style="text-align: right;">36</p>	PAGE: <p style="text-align: right;">36</p>
	APPLICATION NO: <p style="text-align: right;">See Page 1</p>	DATE: <p style="text-align: right;">7/21/2010</p>
	PROCESSED BY: <p style="text-align: right;">H. N.</p>	CHECKED BY:

CONCLUSIONS:

Emission calculations and equipment analysis show that the equipment would operate in compliance with all the applicable Rules and Regulations.

RECOMMENDATIONS:

It is recommended to grant Permit to Construct for the equipment, subject to the conditions stated above.

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions * And Requirements	Conditions
Process I: POLYESTER MANUFACTURING					
System I: POLYESTER REACTION, MIXING STORAGE AND PACKAGING					S1.1, S20.1
REACTOR, R1, 3000 GALLON CAPACITY, HEIGHT: 6 FT 9 IN; DIAMETER: 8 FT WITH A/N:	D1	C38		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1
FURNACE, NATURAL GAS, 3.288 MMBTU/HR	D2		NOX: PROCESS UNIT**	CO: 2000 PPMV (5) [RULE 407, 4-2-1982]; NOX: 12.8 LBS/1000 GAL PROPANE (1) [RULE 2012, 12-7-1995]; NOX: 57.69 LBS/MMSCF NATURAL GAS (1) [RULE 2012, 12-7-1995]; PM: (9) [RULE 404, 2-7-1986]; PM: 0.1 GRAINS/SCF (5) [RULE 409, 8-7-1981]	B75.1, D323.1
CONDENSER, REFLUX COLUMN	C43				
REACTOR, R2, 4300 GALLON CAPACITY, HEIGHT: 8 FT 4 IN; DIAMETER: 9 FT WITH A/N:	D3	C38		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1
FURNACE, NATURAL GAS, 4 MMBTU/HR	D4		NOX: PROCESS UNIT**	CO: 2000 PPMV (5) [RULE 407, 4-2-1982]; NOX: 12.8 LBS/1000 GAL PROPANE (1) [RULE 2012, 12-7-1995]; NOX: 57.69 LBS/MMSCF NATURAL GAS (1) [RULE 2012, 12-7-1995]; PM: (9) [RULE 404, 2-7-1986]; PM: 0.1 GRAINS/SCF (5) [RULE 409, 8-7-1981]	B75.1, D323.1
CONDENSER, REFLUX COLUMN	C44				

* (1) (1A) (1B) Denotes RECLAIM emission factor (2) (2A) (2B) Denotes RECLAIM emission rate
(3) Denotes RECLAIM concentration limit (4) Denotes BACT emission limit
(5) (5A) (5B) Denotes command and control emission limit (6) Denotes air toxic control rule limit
(7) Denotes NSR applicability limit (8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(9) See App B for Emission Limits (10) See section J for NESHAP/MACT requirements
** Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions * And Requirements	Conditions
Process I: POLYESTER MANUFACTURING					
TANK, HOLDING, TT1, THINNING, JACKETED, WITH CONDENSER, HEIGHT: 13 FT 4 IN; DIAMETER: 8 FT 8 IN A/N:	D7	C38		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1
TANK, HOLDING, TT2, THINNING, JACKETED, WITH CONDENSER, HEIGHT: 14 FT 9 IN; DIAMETER: 9 FT 6 IN A/N:	D8	C38		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1
MIXER, TANK MT7, POLYESTER RESIN, JACKETED, WITH CONDENSER, HEIGHT: 12 FT 6 IN; DIAMETER: 9 FT 6 IN A/N:	D9	C38		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	D323.1, E1.1, E166.1
MIXER, TANK MT1, HEIGHT: 6 FT ; DIAMETER: 10 FT A/N:	D10	C38		PM: (9) [RULE 405, 2-7-1986]; ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	D323.1, E1.1, E166.1
MIXER, TANK MT2, HEIGHT: 8 FT ; DIAMETER: 10 FT A/N:	D11	C38		PM: (9) [RULE 405, 2-7-1986]; ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	D323.1, E1.1, E166.1
MIXER, TANK MT3, HEIGHT: 11 FT 2 IN; DIAMETER: 6 FT A/N:	D12	C38		PM: (9) [RULE 405, 2-7-1986]; ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	D323.1, E1.1, E166.1
MIXER, TANK MT4, HEIGHT: 11 FT ; DIAMETER: 10 FT A/N:	D13	C38		PM: (9) [RULE 405, 2-7-1986]; ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	D323.1, E1.1, E166.1

- * (1) (1A) (1B) Denotes RECLAIM emission factor
(3) Denotes RECLAIM concentration limit
(5) (5A) (5B) Denotes command and control emission limit
(7) Denotes NSR applicability limit
(9) See App B for Emission Limits
- (2) (2A) (2B) Denotes RECLAIM emission rate
(4) Denotes BACT emission limit
(6) Denotes air toxic control rule limit
(8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(10) See section J for NESHAP/MACT requirements
- ** Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions * And Requirements	Conditions
Process 1: POLYESTER MANUFACTURING					
MIXER, TANK MT5, HEIGHT: 12 FT 6 IN; DIAMETER: 12 FT 6 IN A/N:	D14	C38		PM: (9) [RULE 405, 2-7-1986]; ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	D323.1, E1.1, E166.1
MIXER, TANK MT6, HEIGHT: 12 FT 6 IN; DIAMETER: 12 FT 6 IN A/N:	D15	C38		PM: (9) [RULE 405, 2-7-1986]; ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	D323.1, E1.1, E166.1
PACKAGING MACHINE, DRUM FILLING STATION A/N:	D17	C38		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1
PACKAGING MACHINE, DRUM FILLING STATION A/N:	D18	C38		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1
System 2: SAMPLE MIXING					
MIXER, SAMPLE, 200 GALS; DIAMETER: 4 FT ; HEIGHT: 3 FT 6 IN A/N:	D19			ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E166.1
System 3: MATERIAL HANDLING					
BULK MATERIAL LOADING STATION, TANK TRUCK, WITH VAPOR RETURN LINES A/N:	D20	C38		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E57.2
System 4: RESIN/PLASTIC CURING OVEN					
OVEN, PLASTIC CURING OVEN, STEAM-HEATED A/N: 343782	D56	C38		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1
Process 2: STORAGE TANKS					
System 1: RESIN STORAGE					

- * (1) (1A) (1B) Denotes RECLAIM emission factor (2) (2A) (2B) Denotes RECLAIM emission rate
(3) Denotes RECLAIM concentration limit (4) Denotes BACT emission limit
(5) (5A) (5B) Denotes command and control emission limit (6) Denotes air toxic control rule limit
(7) Denotes NSR applicability limit (8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(9) See App B for Emission Limits (10) See section J for NESHAP/MACT requirements
- ** Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
Process 2: STORAGE TANKS					
STORAGE TANK, #1, RESIN, 17000 GALS A/N:	D22	C38		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1, E166.1
STORAGE TANK, #2, RESIN, 17000 GALS A/N:	D23	C38		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1, E166.1
STORAGE TANK, #3, RESIN, 17000 GALS A/N:	D24	C38		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1, E166.1
STORAGE TANK, #4, RESIN, 15000 GALS A/N:	D25	C38		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1, E166.1
STORAGE TANK, #5, RESIN, 15000 GALS A/N:	D26	C38		ROG: 5.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1, E166.1
STORAGE TANK, #6, RESIN, 10000 GALS A/N:	D27	C38		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1, E166.1
STORAGE TANK, #7, RESIN, 22000 GALS A/N:	D28	C38		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1, E166.1
STORAGE TANK, #8, RESIN, 10000 GALS A/N:	D29	C38		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1, E166.1
STORAGE TANK, #9, RESIN, 17000 GALS A/N:	D30	C38		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1, E166.1
STORAGE TANK, #10, RESIN, 17000 GALS A/N:	D31	C38		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1, E166.1
System 2: MISCELLANEOUS STORAGE					

- * (1) (1A) (1B) Denotes RECLAIM emission factor
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(5) (5A) (5B) Denotes command and control emission limit
(7) Denotes NSR applicability limit
(9) See App B for Emission Limits
- (2) (2A) (2B) Denotes RECLAIM emission rate
(4) Denotes BACT emission limit
(6) Denotes air toxic control rule limit
(8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(10) See section J for NESHAP/MACT requirements
- ** Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions * And Requirements	Conditions
Process 2: STORAGE TANKS					
STORAGE TANK, #3, STYRENE, 17800 GALS; DIAMETER: 13 FT ; HEIGHT: 18 FT A/N:	D32	C38		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1, E166.1
STORAGE TANK, #6, STYRENE, 17800 GALS; DIAMETER: 13 FT ; HEIGHT: 18 FT A/N:	D33	C38		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1, E166.1
STORAGE TANK, PHTHALIC ANHYDRIDE, 20000 GALS; DIAMETER: 13 FT ; HEIGHT: 20 FT A/N: 344485	D34	C35		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	C1.1, E1.1
CONDENSER A/N: 344485	C35	D34		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	C8.1, D12.2, D12.4, D12.5, E179.1, E202.1, K67.2
STORAGE TANK, JACKETED, MALEIC ANHYDRIDE, 17000 GALS; DIAMETER: 13 FT ; HEIGHT: 18 FT A/N: 344486	D36			ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E166.1
STORAGE TANK, PROPANE, 30000 GALS; DIAMETER: 9 FT ; HEIGHT: 66 FT A/N: 344487	D37				
STORAGE TANK, #10, RINSE, STYRENE, 5000 GALS; DIAMETER: 8 FT ; HEIGHT: 14 FT A/N:	D45	C38		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E57.1, E166.1
Process 3: AIR POLLUTION CONTROL SYSTEM					
TANK, SURGE, WASTE, VAPOR, 12000 GALS; DIAMETER: 10 FT ; LENGTH: 25 FT A/N:	C39			ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	

- * (1) (1A) (1B) Denotes RECLAIM emission factor (2) (2A) (2B) Denotes RECLAIM emission rate
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(7) Denotes NSR applicability limit (8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(9) See App B for Emission Limits (10) See section J for NESHAP/MACT requirements
- ** Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
Process 3: AIR POLLUTION CONTROL SYSTEM					
COLUMN, SECONDARY, HEIGHT: 20 FT 6 IN; DIAMETER: 3 FT WITH A/N:	C41			ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	
KNOCK OUT POT, HEIGHT: 6 FT 3 IN; DIAMETER: 3 FT	C42			ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	
AFTERBURNER, NATURAL GAS, 7.5 MMBTU/HR WITH A/N:	C38	D1 D3 D7 D8 D9 D10 D11 D12 D13 D14 D15 D17 D18 D20 D22 D23 D24 D25 D26 D27 D28 D29 D30 D31 D32 D33 D45 D56	NOX: PROCESS UNIT**	CO: 2000 PPMV (5) [RULE 407, 4-2-1982]; NOX: 12.8 LBS/1000 GAL PROPANE (1) [RULE 2012, 12-7-1995]; NOX: 64.1 LBS/MMSCF NATURAL GAS (1) [RULE 2012, 12-7-1995]; PM: (9) [RULE 404, 2-7-1986]; PM: 0.1 GRAINS/SCF (5) [RULE 409, 8-7-1981]	B75.1, C8.2, D12.1, D12.3, D28.1, D323.1, E168.1
BOILER, WASTE HEAT, 7.5 MMBTU/HR	D40				
Process 4: INTERNAL COMBUSTION					
System 1: EMERGENCY EQUIPMENT					
INTERNAL COMBUSTION ENGINE, EMERGENCY FIRE, DIESEL FUEL, DETROIT DIESEL CORPORATION, MODEL DDFP-L8FA, WITH AFTERCOOLER, TURBOCHARGER, 460 BHP A/N: 344489	D49		NOX: PROCESS UNIT**	NOX: 469 LBS/1000 GAL DIESEL (1) [RULE 2012, 12-7-1995]; PM: (9) [RULE 404, 2-7-1986]; SOX: 6.24 LBS/1000 GAL DIESEL (1) [RULE 2011, 12-7-1995]	B163.1, C1.2, C177.1, D12.6, D135.1, D323.1
INTERNAL COMBUSTION ENGINE, EMERGENCY POWER, DIESEL FUEL, CATERPILLAR, MODEL 3412 DITTA, WITH AFTERCOOLER, TURBOCHARGER, 746 BHP A/N: 365779	D57		NOX: PROCESS UNIT**	NOX: 469 LBS/1000 GAL DIESEL (1) [RULE 2012, 12-7-1995]; PM: (9) [RULE 404, 2-7-1986]; SOX: 6.24 LBS/1000 GAL DIESEL (2) [RULE 2011, 12-7-1995]	B163.1, C1.2, C177.1, D12.6, D135.1, D323.1

- * (1) (1A) (1B) Denotes RECLAIM emission factor (2) (2A) (2B) Denotes RECLAIM emission rate
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(7) Denotes NSR applicability limit (8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(9) See App B for Emission Limits (10) See section J for NESHAP/MACT requirements
- ** Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions * And Requirements	Conditions
Process 5: Rule 219 Exempt Equipment Subject to Source-Specific Requirements					
System I: RULE 219 EXEMPT EQUIPMENT					
RULE 219 EXEMPT EQUIPMENT, COATING EQUIPMENT, PORTABLE, ARCHITECTURAL COATINGS	E50			ROG: (9) [RULE 1113, 11-8-1996; RULE 1171, 6-13-1997]	K67.1
RULE 219 EXEMPT EQUIPMENT, FUGITIVE EMISSIONS, PUMPS	E51			ROG: (5) [RULE 1173, 5-13-1994; RULE 466, 10-7-1983]	H23.1
RULE 219 EXEMPT EQUIPMENT, FUGITIVE EMISSIONS, COMPRESSORS	E52			ROG: (5) [RULE 1173, 5-13-1994; RULE 466, 10-7-1983]	H23.1
RULE 219 EXEMPT EQUIPMENT, FUGITIVE EMISSIONS, FLANGES	E53			ROG: (5) [RULE 1173, 5-13-1994; RULE 466.1, 5-2-1980]	H23.1
RULE 219 EXEMPT EQUIPMENT, FUGITIVE EMISSIONS, PRV	E54			ROG: (5) [RULE 1173, 5-13-1994; RULE 466.1, 5-2-1980]	H23.1
RULE 219 EXEMPT EQUIPMENT, FUGITIVE EMISSIONS, FITTINGS	E55			ROG: (5) [RULE 1173, 5-13-1994]	H23.1

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(7) Denotes NSR applicability limit
(9) See App B for Emission Limits
- (2) (2A) (2B) Denotes RECLAIM emission rate
(4) Denotes BACT emission limit
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(8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(10) See section J for NESHAP/MACT requirements
- ** Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION D: DEVICE ID INDEX

**The following sub-section provides an index
to the devices that make up the facility
description sorted by device ID.**

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION D: DEVICE ID INDEX

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D26	4	2	1
D27	4	2	1
D28	4	2	1
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D31	4	2	1
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D33	5	2	2
D34	5	2	2
C35	5	2	2
D36	5	2	2
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**FACILITY PERMIT TO OPERATE
AOC, LLC
SECTION D: DEVICE ID INDEX**

Device Index For Section D			
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C44	1	1	1
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D49	6	4	1
E50	7	5	1
E51	7	5	1
E52	7	5	1
E53	7	5	1
E54	7	5	1
E55	7	5	1
D56	3	1	4
D57	6	4	1

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

FACILITY CONDITIONS

F9.1 Except for open abrasive blasting operations, the operator shall not discharge into the atmosphere from any single source of emissions whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is:

(a) As dark or darker in shade as that designated No.1 on the Ringelmann Chart, as published by the United States Bureau of Mines; or

(b) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subparagraph (a) of this condition.

[RULE 401, 3-2-1984; RULE 401, 4-7-1989]

F14.1 The operator shall not use fuel oil containing sulfur compounds in excess of 0.5 percent by weight.

[RULE 431.2, 2-2-1979]

SYSTEM CONDITIONS

S1.1 The operator shall limit the production rate to no more than 7.26 million lb(s) in any one month.

[RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002]

[Systems subject to this condition : Process 1, System 1]

S20.1 For the purposes of determining compliance with District Rule 1141, VOC emissions shall be based on the combined emissions from all points of this system.

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

[RULE 1141, 4-3-1992]

[Systems subject to this condition : Process 1, System 1]

DEVICE CONDITIONS

B. Material/Fuel Type Limits

B75.1 The operator shall not use propane in this equipment except under the following circumstance(s):

Natural gas curtailment

Compliance testing

Maintenance testing

[RULE 1303(b)(2)-Offset, 5-10-1996]

[Devices subject to this condition : D1, D3, C38]

B163.1 The operator shall not use diesel fuel containing the following:

Sulfur content in excess of 0.05 percent by weight

[RULE 431.2, 5-4-1990]

[Devices subject to this condition : D49, D57]

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

C. Throughput or Operating Parameter Limits

C1.1 The operator shall limit the loading rate to no more than 85 gallons per minute.

[**RULE 1303(b)(2)-Offset, 5-10-1996; RULE 402, 5-7-1976**]

[Devices subject to this condition : D34]

C1.2 The operator shall limit the operating time to no more than 199 hour(s) in any one year.

[**RULE 1110.2, 11-14-1997; RULE 1304(a)-Modeling and Offset Exemption, 6-14-1996; RULE 2012, 12-7-1995**]

[Devices subject to this condition : D49, D57]

C8.1 The operator shall use this equipment in such a manner that the flow rate being monitored, as indicated below, is not less than 1 gpm.

To comply with this condition, the operator shall monitor the flow rate as specified in condition number 12-2.

[**RULE 1303(a)(1)-BACT, 5-10-1996**]

[Devices subject to this condition : C35]

C8.2 The operator shall use this equipment in such a manner that the temperature being monitored, as indicated below, is not less than 1450 Deg F.

To comply with this condition, the operator shall monitor the temperature as specified in condition number 12-3.

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition : C38]

C177.1 The operator shall set and maintain the fuel injection timing of the engine at 4 degrees retarded relative to standard timing.

[RULE 1110.2, 11-14-1997; RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997]

[Devices subject to this condition : D49, D57]

D. Monitoring/Testing Requirements

D12.1 The operator shall install and maintain a(n) gauge to accurately indicate the oxygen concentration in the afterburner.

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition : C38]

D12.2 The operator shall install and maintain a(n) flow meter to accurately indicate the flow rate of the cooling water of the vapor condenser.

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition : C35]

D12.3 The operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature in the afterburner.

The operator shall also install and maintain a device to continuously record the parameter being measured.

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 3004(a)(4)-Periodic Monitoring, 8-11-1995]

[Devices subject to this condition : C38]

- D12.4 The operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature of the cooling water at the inlet.

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition : C35]

- D12.5 The operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature of the cooling water at the outlet.

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition : C35]

- D12.6 The operator shall install and maintain a(n) non-resettable elapsed time meter to accurately indicate the elapsed operating time of the engine.

[RULE 1110.2, 11-14-1997; RULE 1304(e), 6-14-1996; RULE 2012, 12-7-1995]

[Devices subject to this condition : D49, D57]

- D28.1 The operator shall conduct source test(s) in accordance with the following specifications:

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

The test shall be conducted at least once during the life of the permit.

The test shall be conducted to determine the ROG emissions at the inlet and outlet simultaneously.

The test shall be conducted to determine the ROG emissions using District method 25.1 measured over a 60 minute averaging time period.

The test shall be conducted to demonstrate compliance with Rule 1141.

[RULE 3004(a)(4)-Periodic Monitoring, 8-11-1995]

[Devices subject to this condition : C38]

D135.1 The operator shall inspect, adjust, and certify the ignition or fuel injection timing of this engine a minimum of once every 3 years of operation. Inspections, adjustments, and certifications shall be performed by a qualified mechanic and performed in accordance with the engine manufacturer's specifications and procedures.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 2012, 12-7-1995]

[Devices subject to this condition : D49, D57]

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

D323.1 The operator shall conduct an inspection for visible emissions from all stacks and other emission points of this equipment whenever there is a public complaint of visible emissions, whenever visible emissions are observed, and on a semi-annual basis, at least, unless the equipment did not operate during the entire semi-annual period. The routine semi-annual inspection shall be conducted while the equipment is in operation and during daylight hours.

If any visible emissions (not including condensed water vapor) are detected that last more than three minutes in any one hour, the operator shall verify and certify within 24 hours that the equipment causing the emission and any associated air pollution control equipment are operating normally according to their design and standard procedures and under the same conditions under which compliance was achieved in the past, and either:

1). Take corrective action(s) that eliminates the visible emissions within 24 hours and report the visible emissions as a potential deviation in accordance with the reporting requirements in Section K of this permit; or

2). Have a CARB-certified smoke reader determine compliance with the opacity standard, using EPA Method 9 or the procedures in the CARB manual "Visible Emission Evaluation", within three business days and report any deviations to AQMD.

In addition, the operator shall have a CARB-certified smoke reader determine compliance with the opacity standard, using EPA Method 9 or the procedures in the CARB manual "Visible Emission Evaluation", within 72 hours of conversion to fuel oil firing and on a weekly basis thereafter, until the equipment stops firing fuel oil.

The operator shall keep the records in accordance with the recordkeeping requirements in Section K of this permit and the following records:

- 1). Stack or emission point identification;
- 2). Description of any corrective actions taken to abate visible emissions;
- 3). Date and time visible emission was abated; and

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

- 4). All visible emission observation records by operator or a certified smoke reader.

[RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997]

[Devices subject to this condition : D1, D3, D9, D10, D11, D12, D13, D14, D15, C38, D49, D57]

E. Equipment Operation/Construction Requirements

- E1.1 The operator shall vent the emissions from this equipment to only one of the devices identified in the "connected to" column of this facility permit at any given time.

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition : D1, D3, D7, D8, D9, D10, D11, D12, D13, D14, D15, D17, D18, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D33, D34, D56]

- E57.1 The operator shall vent this equipment to C38 whenever this tank is being filled with styrene.

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition : D45]

- E57.2 The operator shall vent this equipment to a vapor recovery system or air pollution control system operating with a valid permit from the SCAQMD whenever the equipment is operating.

[RULE 1303(a)(1)-BACT, 5-10-1996]

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

[Devices subject to this condition : D20]

- E166.1 The operator shall keep all openings from this equipment closed when in use except during inspection, sampling or maintenance.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 402, 5-7-1976]

[Devices subject to this condition : D9, D10, D11, D12, D13, D14, D15, D19, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D33, D36, D45]

- E168.1 The following condition number(s) applies if the total emissions of volatile organic compounds (VOC) from the organic resin reactors, thinning tanks and blending tanks, before being vented to the atmosphere are not reduced to 0.5 pound per 1000 pounds of completed resin produced.

Condition Number A 72- 1

[RULE 1141, 4-3-1992]

[Devices subject to this condition : C38]

- E179.1 For the purpose of the following condition number(s), clean and maintain shall be defined as steamed out.

Condition Number E 202- 1

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 402, 5-7-1976]

[Devices subject to this condition : C35]

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

E202.1 The operator shall clean and maintain this equipment according to the following specifications:

Immediately before and after each filling operation.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 402, 5-7-1976]

[Devices subject to this condition : C35]

H. Applicable Rules

H23.1 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	1173

[RULE 1173, 5-13-1994]

[Devices subject to this condition : E51, E52, E53, E54, E55]

K. Record Keeping/Reporting

K67.1 The operator shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

For architectural applications where no thinners, reducers, or other VOC containing materials are added, maintain semi-annual records for all coating consisting of (a) coating type, (b) VOC content as supplied in grams per liter (g/l) of materials for low-solids coatings, (c) VOC content as supplied in g/l of coating, less water and exempt solvent, for other coatings.

For architectural applications where thinners, reducers, or other VOC containing materials are added, maintain daily records for each coating consisting of (a) coating type, (b) VOC content as applied in grams per liter (g/l) of materials used for low-solids coatings, (c) VOC content as applied in g/l of coating, less water and exempt solvent, for other coatings.

[RULE 3004(a)(4)-Periodic Monitoring, 8-11-1995]

[Devices subject to this condition : E50]

K67.2 The operator shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

Daily record of inlet and outlet temperatures of cooling water

Daily record of flow rate of cooling water to the condenser

[RULE 3004(a)(4)-Periodic Monitoring, 8-11-1995]

[Devices subject to this condition : C35]

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
Process 1: POLYESTER MANUFACTURING					
System 1: POLYESTER REACTION, MIXING STORAGE AND PACKAGING					S1.1, S20.1
REACTOR, R1, 3000 GALLON CAPACITY, HEIGHT: 6 FT 9 IN; DIAMETER: 8 FT WITH A/N:	D1	C38	NOX: PROCESS UNIT**	ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1
FURNACE, NATURAL GAS, 3.288 MMBTU/HR	D2			CO: 2000 PPMV (5) [RULE 407, 4-2-1982]; NOX: 12.8 LBS/1000 GAL PROPANE (1) [RULE 2012, 12-7-1995]; NOX: 57.69 LBS/MMSCF NATURAL GAS (1) [RULE 2012, 12-7-1995]; PM: (9) [RULE 404, 2-7-1986]; PM: 0.1 GRAINS/SCF (5) [RULE 409, 8-7-1981]	B75.1, D323.1
CONDENSER, REFLUX COLUMN	C43				
REACTOR, R2, 4300 GALLON CAPACITY, HEIGHT: 8 FT 4 IN; DIAMETER: 9 FT WITH A/N:	D3	C38	NOX: PROCESS UNIT**	ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1
FURNACE, NATURAL GAS, 4 MMBTU/HR	D4			CO: 2000 PPMV (5) [RULE 407, 4-2-1982]; NOX: 12.8 LBS/1000 GAL PROPANE (1) [RULE 2012, 12-7-1995]; NOX: 57.69 LBS/MMSCF NATURAL GAS (1) [RULE 2012, 12-7-1995]; PM: (9) [RULE 404, 2-7-1986]; PM: 0.1 GRAINS/SCF (5) [RULE 409, 8-7-1981]	B75.1, D323.1
CONDENSER, REFLUX COLUMN	C44				

- * (1) (1A) (1B) Denotes RECLAIM emission factor (2) (2A) (2B) Denotes RECLAIM emission rate
(3) Denotes RECLAIM concentration limit (4) Denotes BACT emission limit
(5) (5A) (5B) Denotes command and control emission limit (6) Denotes air toxic control rule limit
(7) Denotes NSR applicability limit (8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(9) See App B for Emission Limits (10) See section J for NESHAP/MACT requirements
- ** Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
Process 1: POLYESTER MANUFACTURING					
TANK, HOLDING, TT1, THINNING, JACKETED, WITH CONDENSER, HEIGHT: 13 FT 4 IN; DIAMETER: 8 FT 8 IN A/N:	D7	C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1
TANK, HOLDING, TT2, THINNING, JACKETED, WITH CONDENSER, HEIGHT: 14 FT 9 IN; DIAMETER: 9 FT 6 IN A/N:	D8	C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1
MIXER, TANK MT7, POLYESTER RESIN, JACKETED, WITH CONDENSER, HEIGHT: 12 FT 6 IN; DIAMETER: 9 FT 6 IN A/N:	D9	C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	D323.1, E1.1, E166.1
MIXER, TANK MT1, HEIGHT: 6 FT ; DIAMETER: 10 FT A/N:	D10	C58		PM: (9) [RULE 405, 2-7-1986]; ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	D323.1, E1.1, E166.1
MIXER, TANK MT2, HEIGHT: 8 FT ; DIAMETER: 10 FT A/N:	D11	C58		PM: (9) [RULE 405, 2-7-1986]; ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	D323.1, E1.1, E166.1
MIXER, TANK MT3, HEIGHT: 11 FT 2 IN; DIAMETER: 6 FT A/N:	D12	C58		PM: (9) [RULE 405, 2-7-1986]; ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	D323.1, E1.1, E166.1
MIXER, TANK MT4, HEIGHT: 11 FT ; DIAMETER: 10 FT A/N:	D13	C58		PM: (9) [RULE 405, 2-7-1986]; ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	D323.1, E1.1, E166.1

- * (1) (1A) (1B) Denotes RECLAIM emission factor
(3) Denotes RECLAIM concentration limit
(5) (5A) (5B) Denotes command and control emission limit
(7) Denotes NSR applicability limit
(9) See App B for Emission Limits
- (2) (2A) (2B) Denotes RECLAIM emission rate
(4) Denotes BACT emission limit
(6) Denotes air toxic control rule limit
(8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(10) See section J for NESHAP/MACT requirements
- ** Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
Process 1: POLYESTER MANUFACTURING					
MIXER, TANK MT5, HEIGHT: 12 FT 6 IN; DIAMETER: 12 FT 6 IN A/N:	D14	C58		PM: (9) [RULE 405, 2-7-1986]; ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	D323.1, E1.1, E166.1
MIXER, TANK MT6, HEIGHT: 12 FT 6 IN; DIAMETER: 12 FT 6 IN A/N:	D15	C58		PM: (9) [RULE 405, 2-7-1986]; ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	D323.1, E1.1, E166.1
PACKAGING MACHINE, DRUM FILLING STATION A/N:	D17	C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1
PACKAGING MACHINE, DRUM FILLING STATION A/N:	D18	C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1
System 2: SAMPLE MIXING					
MIXER, SAMPLE, 200 GALS; DIAMETER: 4 FT ; HEIGHT: 3 FT 6 IN A/N:	D19	C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E166.1
System 3: MATERIAL HANDLING					
BULK MATERIAL LOADING STATION, TANK TRUCK, WITH VAPOR RETURN LINES A/N:	D20	C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E57.2
Process 2: STORAGE TANKS					
System 1: RESIN STORAGE					
STORAGE TANK, #1, RESIN, 17000 GALS A/N:	D22	C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1, E166.1
STORAGE TANK, #2, RESIN, 17000 GALS A/N:	D23	C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1, E166.1

- * (1) (1A) (1B) Denotes RECLAIM emission factor (2) (2A) (2B) Denotes RECLAIM emission rate
(3) Denotes RECLAIM concentration limit (4) Denotes BACT emission limit
(5) (5A) (5B) Denotes command and control emission limit (6) Denotes air toxic control rule limit
(7) Denotes NSR applicability limit (8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(9) See App B for Emission Limits (10) See section J for NESHAP/MACT requirements
- ** Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
Process 2: STORAGE TANKS					
STORAGE TANK, #3, RESIN, 17000 GALS A/N:	D24	C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1, E166.1
STORAGE TANK, #4, RESIN, 15000 GALS A/N:	D25	C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1, E166.1
STORAGE TANK, #5, RESIN, 15000 GALS A/N:	D26	C58		ROG: 5.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1, E166.1
STORAGE TANK, #6, RESIN, 10000 GALS A/N:	D27	C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1, E166.1
STORAGE TANK, #7, RESIN, 22000 GALS A/N:	D28	C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1, E166.1
STORAGE TANK, #8, RESIN, 10000 GALS A/N:	D29	C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1, E166.1
STORAGE TANK, #9, RESIN, 17000 GALS A/N:	D30	C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1, E166.1
STORAGE TANK, #10, RESIN, 17000 GALS A/N:	D31	C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1, E166.1
System 2: MISCELLANEOUS STORAGE					
STORAGE TANK, #3, STYRENE, 17800 GALS; DIAMETER: 13 FT ; HEIGHT: 18 FT A/N:	D32	C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1, E166.1
STORAGE TANK, #6, STYRENE, 17800 GALS; DIAMETER: 13 FT ; HEIGHT: 18 FT A/N:	D33	C58		ROG: 0.5 LBS/1000 LBS PRODUCED RESIN (5) [RULE 1141, 4-3-1992]	E1.1, E166.1

- * (1) (1A) (1B) Denotes RECLAIM emission factor (2) (2A) (2B) Denotes RECLAIM emission rate
(3) Denotes RECLAIM concentration limit (4) Denotes BACT emission limit
(5) (5A) (5B) Denotes command and control emission limit (6) Denotes air toxic control rule limit
(7) Denotes NSR applicability limit (8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(9) See App B for Emission Limits (10) See section J for NESHAP/MACT requirements
- ** Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
Process 2: STORAGE TANKS					
STORAGE TANK, RINSE, STYRENE, 5000 GALS; DIAMETER: 8 FT ; HEIGHT: 14 FT A/N:	D45	C58			E1.1, E166.1
STORAGE TANK, NO. 1, DCPD A/N:	D60	C62			
STORAGE TANK, NO. 2, DCPD A/N:	D61	C62			
CARBON ADSORBER, TWO VESSELS CONSTRUCTED IN SERIES, EACH WITH 150 LBS OF ACTIVATED CARBON A/N:	C62	D60 D61			C6.1, D90.2, E153.2
Process 3: AIR POLLUTION CONTROL SYSTEM					
TANK, SURGE, WASTE, VAPOR, 12000 GALS; DIAMETER: 10 FT ; LENGTH: 25 FT A/N:	C39				
COLUMN, SECONDARY, HEIGHT: 20 FT 6 IN; DIAMETER: 3 FT WITH A/N:	C41				
KNOCK OUT POT, HEIGHT: 6 FT 3 IN; DIAMETER: 3 FT	C42				
AFTERBURNER, NATURAL GAS, 7.5 MMBTU/HR WITH A/N:	C38	D1 D3	NOX: PROCESS UNIT**	NOX: 130 LBS/MMSCF NATURAL GAS (1)	
BOILER, WASTE HEAT, 7.5 MMBTU/HR	D40				

- * (1) (1A) (1B) Denotes RECLAIM emission factor
(3) Denotes RECLAIM concentration limit
(5) (5A) (5B) Denotes command and control emission limit
(7) Denotes NSR applicability limit
(9) See App B for Emission Limits
- (2) (2A) (2B) Denotes RECLAIM emission rate
(4) Denotes BACT emission limit
(6) Denotes air toxic control rule limit
(8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(10) See section J for NESHAP/MACT requirements
- ** Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

*	(1) (1A) (1B) Denotes RECLAIM emission factor	(2) (2A) (2B) Denotes RECLAIM emission rate
	(3) Denotes RECLAIM concentration limit	(4) Denotes BACT emission limit
	(5) (5A) (5B) Denotes command and control emission limit	(6) Denotes air toxic control rule limit
	(7) Denotes NSR applicability limit	(8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
	(9) See App B of Emission Limits	(10) See section J for NESHAP/MACT requirements

** Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION H: DEVICE ID INDEX

**The following sub-section provides an index
to the devices that make up the facility
description sorted by device ID.**

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION H: DEVICE ID INDEX

Device Index For Section H			
Device ID	Section H Page No.	Process	System
D1	1	1	1
D2	1	1	1
D3	1	1	1
D4	1	1	1
D7	2	1	1
D8	2	1	1
D9	2	1	1
D10	2	1	1
D11	2	1	1
D12	2	1	1
D13	2	1	1
D14	3	1	1
D15	3	1	1
D17	3	1	1
D18	3	1	1
D19	3	1	2
D20	3	1	3
D22	3	2	1
D23	3	2	1
D24	4	2	1
D25	4	2	1
D26	4	2	1
D27	4	2	1
D28	4	2	1
D29	4	2	1
D30	4	2	1
D31	4	2	1
D32	4	2	2
D33	4	2	2
C38	5	3	0
C39	5	3	0
D40	5	3	0
C41	5	3	0
C42	5	3	0

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION H: DEVICE ID INDEX

Device Index For Section H			
Device ID	Section H Page No.	Process	System
C43	1	1	1
C44	1	1	1
D45	5	2	2
C58	6	3	0
D60	5	2	2
D61	5	2	2
C62	5	2	2

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

FACILITY CONDITIONS

F9.1 Except for open abrasive blasting operations, the operator shall not discharge into the atmosphere from any single source of emissions whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is:

(a) As dark or darker in shade as that designated No.1 on the Ringelmann Chart, as published by the United States Bureau of Mines; or

(b) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subparagraph (a) of this condition.

[RULE 401, 3-2-1984; RULE 401, 4-7-1989]

F14.1 The operator shall not use fuel oil containing sulfur compounds in excess of 0.5 percent by weight.

[RULE 431.2, 2-2-1979]

SYSTEM CONDITIONS

S1.1 The operator shall limit the production rate to no more than 7.26 million lb(s) in any one month.

[RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002]

[Systems subject to this condition : Process 1, System 1]

S20.1 For the purposes of determining compliance with District Rule 1141, VOC emissions shall be based on the combined emissions from all points of this system.

[RULE 1141, 4-3-1992]

[Systems subject to this condition : Process 1, System 1]

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

DEVICE CONDITIONS

B. Material/Fuel Type Limits

B75.1 The operator shall not use propane in this equipment except under the following circumstance(s):

Natural gas curtailment

Compliance testing

Maintenance testing

[RULE 1303(b)(2)-Offset, 5-10-1996]

[Devices subject to this condition : D1, D3]

C. Throughput or Operating Parameter Limits

C1.3 The operator shall limit the exhaust flow to no more than 4800 cubic feet per minute.

[RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002]

[Devices subject to this condition : C58]

C6.1 The operator shall use this equipment in such a manner that the organic vapor concentration being monitored, as indicated below, does not exceed 8 ppm.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002]

[Devices subject to this condition : C58, C62]

D. Monitoring/Testing Requirements

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

- D12.7 The operator shall install and maintain a(n) flow meter to accurately indicate the flow rate of the total vent air to this system.

[**RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002**]

[Devices subject to this condition : C58]

- D28.2 The operator shall conduct source test(s) in accordance with the following specifications:

The test shall be conducted to determine the VOC emissions at the inlet and outlet.

The test shall be conducted within 90 days after achieving maximum production rate, but no later than 180 days after initial start-up.

The District shall be notified of the date and time of the test at least 10 days prior to the test.

The test shall be conducted to demonstrate compliance with VOC emission concentrations.

[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002**]

[Devices subject to this condition : C58]

- D90.1 The operator shall periodically monitor the VOC concentrations at outlet of the second and third carbon vessels according to the following specifications:

The operator shall calibrate the instrument used to monitor the parameter in ppmv methane.

The operator shall monitor once every day.

The monitoring device shall have a detection range to accurately measure 8 ppmv methane and have an accuracy of 98% or better of the device monitoring range, and it shall be calibrated once a week.

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

[RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997]

[Devices subject to this condition : C58]

D90.2 The operator shall periodically monitor the VOC concentrations at outlet of first and second carbon vessels according to the following specifications:

The operator shall calibrate the instrument used to monitor the parameter in ppmv methane.

The operator shall monitor once every week.

The monitoring device shall have a detection range to accurately measure 8 ppmv methane and have an accuracy of 98% or better of the device monitoring range, and it shall be calibrated once a week.

[RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997]

[Devices subject to this condition : C62]

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

D323.1 The operator shall conduct an inspection for visible emissions from all stacks and other emission points of this equipment whenever there is a public complaint of visible emissions, whenever visible emissions are observed, and on a semi-annual basis, at least, unless the equipment did not operate during the entire semi-annual period. The routine semi-annual inspection shall be conducted while the equipment is in operation and during daylight hours.

If any visible emissions (not including condensed water vapor) are detected that last more than three minutes in any one hour, the operator shall verify and certify within 24 hours that the equipment causing the emission and any associated air pollution control equipment are operating normally according to their design and standard procedures and under the same conditions under which compliance was achieved in the past, and either:

- 1). Take corrective action(s) that eliminates the visible emissions within 24 hours and report the visible emissions as a potential deviation in accordance with the reporting requirements in Section K of this permit; or
- 2). Have a CARB-certified smoke reader determine compliance with the opacity standard, using EPA Method 9 or the procedures in the CARB manual "Visible Emission Evaluation", within three business days and report any deviations to AQMD.
In addition, the operator shall have a CARB-certified smoke reader determine compliance with the opacity standard, using EPA Method 9 or the procedures in the CARB manual "Visible Emission Evaluation", within 72 hours of conversion to fuel oil firing and on a weekly basis thereafter, until the equipment stops firing fuel oil.

The operator shall keep the records in accordance with the recordkeeping requirements in Section K of this permit and the following records:

- 1). Stack or emission point identification;
- 2). Description of any corrective actions taken to abate visible emissions;
- 3). Date and time visible emission was abated; and

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

- 4). All visible emission observation records by operator or a certified smoke reader.

[RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997]

[Devices subject to this condition : D1, D3, D9, D10, D11, D12, D13, D14, D15]

E. Equipment Operation/Construction Requirements

- E1.1 The operator shall vent the emissions from this equipment to only one of the devices identified in the "connected to" column of this facility permit at any given time.

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition : D1, D3, D7, D8, D9, D10, D11, D12, D13, D14, D15, D17, D18, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D33, D45]

- E57.2 The operator shall vent this equipment to a vapor recovery system or air pollution control system operating with a valid permit from the SCAQMD whenever the equipment is operating.

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition : D20]

- E153.1 The operator shall change over the carbon in the adsorber whenever breakthrough occurs.

For the purpose of this condition, breakthrough shall be defined as when VOC monitoring indicates a concentration of 8.0 ppmv or greater at the outlet of the second carbon vessel (first carbon vessel is the upstream carbon vessel, second carbon vessel is the mid vessel, and third carbon vessel is last vessel in series).

To change over carbon, the operator shall replace spent carbon with fresh carbon in the first and second vessels within 48 hours after breakthrough has been detected at the outlet of second carbon vessel. And the vapor flow shall be reconfigured such that the third carbon vessel becomes first vessel, and the vessels with fresh carbon are second and third vessels in series.

FACILITY PERMIT TO OPERATE AOC, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

[RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997]

[Devices subject to this condition : C58]

E153.2 The operator shall change over the carbon in the adsorber whenever breakthrough occurs.

For the purpose of this condition, breakthrough shall be defined as when VOC monitoring indicates a concentration of 8.0 ppmv or greater at the outlet of first carbon vessel (first carbon vessel is the upstream carbon vessel).

To change over carbon, the operator shall replace spent carbon with fresh carbon in the first vessel within 48 hours after breakthrough has been detected at the outlet of first carbon vessel. And the vapor flow shall be reconfigured such that the second carbon vessel becomes first vessel in series, and the vessel with fresh carbon is the second vessel in series.

[RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997]

[Devices subject to this condition : C62]

E166.1 The operator shall keep all openings from this equipment closed when in use except during inspection, sampling or maintenance.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 402, 5-7-1976]

[Devices subject to this condition : D9, D10, D11, D12, D13, D14, D15, D19, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D33, D45]